THE LANCET.

VOL. I.] LONDON, SATURDAY, NOVEMBER 19, 1836. [1836-37.

LECTURES
ON
MEDICAL JURISPRUDENCE,
NOW IN COURSE OF DELIVERY
AT THE
UNIVERSITY OF LONDON.

BY PROFESSOR A. T. THOMSON.

LECTURE VII.

Age:—The Divisions of Life.—Influence of Time in the Development of Intellect, and entailing Criminal Responsibility.—Exceptions to the general Rules of Growth; Development at particular Ages.—The period of Puberty.—Influence of Climate and Local Causes in modifying the Time of Puberty.

GENTLEMEN:—Among the subjects which have reference to questions demanding medical testimony, in legal inquiries, connected with our social relationships and the constitution of society, is that of *Age*.

Man, at every period of his existence, even before he becomes a distinct being, whilst he is yet a part of the system of his mother, before birth, until he arrives at extreme old age, is liable to be the subject of medico-legal investigations. Such being the case, the leading circumstances connected with every period of the progress of human life should be familiar to you; not only as affording a foundation for reasoning, in many cases in which the subject of age may influence the discussion, but also as preparatory to questions demanding medical testimony directly connected with the different periods of life.

Poets, both secular and divine, have likened the life of man to a flower, "which cometh up and is cut down;" and this is not more poetically beautiful than it is philosophically true. Man is born, grows, acquires vigour, and attains the utmost perfection of which his nature is capable; then declines, withers, and dies: his life, when not cut short by disease, resembles a circle, the commencement and the termination of which have the closest affinity, as far as regards the condition of many of the organs, the muscular powers, and the intellectual energy.

The threescore-and-ten years of which life is made up, comprehend three general divisions: namely, that of *growth*, in which all the organs are developed, and advance to their maturity; that of *perfection*, in which they are apparently stationary; and that of *decline*, which terminates in—

"——— Second childishness and mere oblivion,
Sans teeth, sans eyes, sans taste, sans every thing."

These are the divisions fixed by ARISTOTLE: they have been subdivided into different stages:—

The 1st including three, namely—*infancy*, *boyhood*, and *puberty*.

The 2nd two—*youth* and *manhood*.

The 3d two—*old age* and *decrepitude*.

But, for our purpose, it is more convenient to regard life as consisting of FIVE stages only, namely,—*infancy*,—*boyhood*,—*youth*,—*manhood*,—and *old age*.

It was supposed by the ancients, that a complete renovation of the materials of which the body consists occurs once in seven years; but modern physiology has demonstrated, that the changes are constantly proceeding; and, in a much shorter period, there is an entire renovation of every organic tissue. In these changes, the successive phenomena that present themselves afford the most interesting topics of consideration; but our time does not permit us to enter upon many of these; indeed, Gentlemen, I am bound to believe that you are already well acquainted with the changes, with the growth and development of parts produced in the human frames; and, consequently, it would be a work of supererogation to go over them again in this place. I shall confine my remarks to those circumstances connected with age, which immediately bear upon our subjects of inquiry.

The first of these is the influence of age in the development of intellect, and, consequently, in fixing the responsibility of individuals in committing crimes.

Were we to examine this subject physiologically, we should arrive at very opposite conclusions to those which the law has acted upon. We should find that, as soon as the organs of the senses are perfected,—

that is, from about the third month after birth till about the seventh, there is a gradual and regular development of intellect. The infant begins to compare, and already recognizes its nurse; displays delight at the sight of the breast, the lactiferous source of its nutriment; and, by its little jealousies and timidity, clearly demonstrates that the mental faculties of *perception*, *reminiscence*, and *inclination*, are in operation.

About the end of the first year, many ideas have been acquired, and the infant learns to maintain his perpendicularity, and walks. After this time, the development of the mind varies greatly, according to *circumstances*, amongst which we may enumerate the character of the nurse; for, as the imitative faculty is now strong, the infant becomes lively and loquacious, or dull and taciturn, as those are the characteristics of his mother or his ordinary attendant; and it may be justly said that the future characters of men are often formed by the impressions made at this period, for there is no fact more evident than this, that education commences in the nursery, and the impulse received, whilst man is yet lying at the breast of his nurse, often determines his future destiny. Something is due, indeed, to climate and national character. A French child, for example, is more lively than a Dutch child, this than an Esquimaux, and this, again, than many of the inhabitants of the Valois,—the victims of goitres and cretinism.

In making these remarks, it is unnecessary to enter into any metaphysical discussion with regard to the origin of our knowledge. Whether the mind be the *tabula rasa* of LOCKE, and receive all its powers from the inlets of the senses, it is undoubted that a large portion of our ideas are received through their channel, and rendered useful by the aid of *memory* and the faculty of *comparison*. It is as undoubted that, although the mind would be wholly destitute of knowledge without the organs of the senses, yet that mind exists independently of these, and might have a consciousness of its own existence, and exercise its various faculties, without these. It would, nevertheless, be foolish to deny the influence of the senses in forming the reasoning faculty. Indeed, it is scarcely possible to conceive that a rational being can be formed, if early deprived of a proper use of the senses. An illustration of this fact was displayed in the history of the unfortunate Earl of WARWICK, in the time of HENRY VII. He was imprisoned when an infant, and kept shut up in a lonely cell for fifteen years, separated from companions and friends, from sport and exercise, almost from light and air, and was thus reduced to a state of abject idiotcy. "He was," says HOLINSHED, "a very innocent;" and another contemporary writer adds, "Being kept for fifteen years without company of men, or sight of beasts, he could not discern a goose from a capon."

As boyhood advances, the mind evidently gains in vigour; and, being enriched with new ideas, education has the regulation of the mental faculties, particularly those that depend on memory rather than on judgment, for memory is, at this time, the most vigorous of the faculties; but it is still greatly under the control of imagination, and the reasoning powers are far from being complete. The powerful influence of education is well exemplified in those prodigies of early mental powers which are, every now and then, brought before the public, namely, calculating boys, infant musicians, and boy-players, who often display less talent in after-life than ordinary boys. Great apparent development of intellect, therefore, in boys is no criterion of judgment. It would be, therefore, difficult to fix the age of responsibility, were we left to be guided by the *discernment* of the individual; the law, consequently, by an allowable fiction, considers that there is no discernment under a certain age, and has fixed upon a *certain age*, in which every individual is responsible to the laws of his country; in which it is supposed that he is influenced by a determination of choice to do or to abstain from particular actions, and, consequently, that every crime is the *vicious* act of a *vicious* will, and that the protection from punishment, arising from irresponsibility, is founded upon the consideration,—*the want or defect of will*. It is true that, in criminal cases, many exceptions to this rule have occurred, and children between ten and fourteen years of age have been regarded, on account of their natural capacity, as proper objects of capital punishment, and have suffered death for criminal acts. I cannot render the law upon this subject more clear to you than by quoting the words of BLACKSTONE:—

"Infants," says this able lawyer, "under the age of *discretion*, ought not to be punished by any criminal prosecution whatever. What the age of discretion is in various nations is matter of some variety. The civil law distinguished the age of minors, or those under twenty-five years old, into three stages—*infantia*, from the birth till seven years of age; *pueritia*, from seven to fourteen; and *pubertas*, from fourteen upwards. The period of *pueritia*, or childhood, was again subdivided into equal parts; from seven till ten and a half was *ætas infantiæ proxima*; from ten and a half to fourteen was *ætas pubertati proxima*. During the first stage of infancy, and the next half stage of childhood, *infantiæ proxima*, they were not punishable for any crime. During the other half stage of childhood, approaching to puberty, from ten and a half to fourteen, they were, indeed, punishable, if found to be *doli capaces*, or capable of mischief; but with many mitigations, and not with the

utmost rigour of the law. During the last stage (at the age of puberty, and afterwards) minors were liable to be punished, as well capitally as otherwise.

"The law of England does in some cases privilege an infant, under the age of twenty-one, as to common misdemeanours, so as to escape *fine, imprisonment*, and the like; and particularly in cases of *omission*, as not repairing a bridge, or a highway, and other similar offences; for, not having the command of his fortune till twenty-one, he wants the capacity to do those things which the law requires. But where there is any notorious breach of the peace, a riot, battery, or the like (which infants, when full grown, are, at least, as liable as others to commit), for these an infant above the age of fourteen is equally liable to suffer, as a person of the full age of twenty-one.

"With regard to capital crimes, the law is still more minute and circumspect, distinguishing with greater nicety the several degrees of age and discretion. By the ancient Saxon law, the age of twelve years was established as the age of possible discretion, when first the understanding might open; and from thence to fourteen it was *ætas pubertati proxima*, in which he might or might not be guilty of a crime, according to his natural capacity or incapacity. This was the dubious stage of discretion; but under twelve it was held that he could not be guilty *in will*, neither after fourteen could he be supposed innocent of any capital crime which he, in fact, committed. But by the law, as it stands, and has stood at least ever since the time of EDWARD III., the capacity of doing ill, or contracting guilt, is not so much measured by years and days, as by the strength of the delinquent's *understanding* and *judgment*, for one lad of eleven years old may have as much cunning as another of fourteen; and in these cases our maxim is, that "*malitia supplet ætatem.*" Under seven years of age, indeed, an infant *cannot* be guilty of felony, for then a felonious discretion is almost an impossibility in nature; but at eight years old he *may be guilty* of felony. Also, under fourteen, though an infant shall be *prima facie* adjudged to be *doli incapax*, yet if it appear to the court and jury that he was *doli incapax*, and could discern between good and evil, he may be convicted, and suffer death. Thus a girl of *thirteen* has been burnt for killing her mistress; and one boy of *ten*, and another of *nine* years old, who had killed their companions, have been sentenced to death, and he of *ten* years was actually hanged, because it appeared upon their trials, that the one hid himself, and the other hid the body he had killed, which hiding manifested a consciousness of guilt, and a discretion to discern between good and evil. And there was an instance in the last century where a boy of eight years old was tried at Abingdon, for firing two barns, and, it appearing that he had malice, revenge, and cunning, he was found guilty, and hanged accordingly. Thus also, in very modern times, a boy of ten years old was convicted, on his own confession, of murdering his bedfellow, there appearing in his whole behaviour plain tokens of a mischievous discretion; and, as the sparing this boy merely on account of his tender years might be of dangerous consequence to the public by propagating a notion that children might commit such atrocious crimes with impunity, it was unanimously agreed by all the judges that he was a proper subject for capital punishment. But in all such cases the evidence of that malice which is to supply age, ought to be strong and clear, beyond all doubt and contradiction."

From this extract from "Blackstone," Gentlemen, you will perceive that boys under ten years of age have been tried, condemned, and executed; but that *seven* years of age is, in this country, the limit within which crime cannot be legally imputed to any one; there is, however, a precedent of a pardon having been granted to a child under seven who was indicted for homicide: but this case ought not to have gone to the jury, for, as I have already said, the law presumes that, under *seven* years of age, no person can have sufficient discretion, and "no averment," says Lord HALE, "can be received against that presumption." Even under *twelve* there must be proof of apparent capacity. Now, this being the case, it becomes a matter of some consequence to ascertain accurately the age of a precocious child, who is stated to be under *seven* years of age, in an arraignment for a felony. How is this fact of absolute infancy to be ascertained? The law says, "if there be any doubt, the culprit must be brought into court to be inspected by the judges, and, if any doubt still remain, the court may take steps to prove the fact." The only steps that can be taken, is the opinion of a medical man, and, in such a case, the practitioner is called, not merely to give his opinion, but to state the foundation of it. This is not to be grounded, as you are already aware, upon the development of intellect; the precocity of mind being influenced by many circumstances, it must rest upon more unvarying evidence, and this is readily found in the *progress of dentition*.

Although this process is occasionally varied in its early stage, yet it is generally regular after the protrusion of the temporary or milk teeth. Scrofula and other diseases may retard dentition, and instances are recorded of children being born with teeth; for example, LOUIS XIV. and MIRABEAU; and SHAKSPEARE has taken advantage of this circumstance to heighten the disgusting character which he drew of RICHARD III. He makes the boy-duke of YORK remark:—

"Marry, they say, my uncle grew so fast,
That he could gnaw a crust at two hours old."

But these teeth soon drop out, and the usual term of dentition is not earlier on this account.

The whole set of temporary or milk teeth, namely, eight incisors or fore teeth, four cuspidati or eye teeth, and eight molares or grinders—twenty in all—is usually complete before the child attains two years of age. They are commonly shed about the sixth or seventh years; but I am not aware of a single instance on record, in which the second dentition has occurred before the seventh year; and it is only at this period that the third molar tooth, on each side of each jaw, and which is a permanent tooth, appears. In criminal cases, therefore, when non-age is pleaded in extenuation of crime, and no direct proof of age being in evidence, should you be called into court to determine the question, if the third molar tooth have not protruded, you can have *no hesitation* in affirming that the culprit has not passed his seventh year. The same fact may also be taken advantage of to determine age in some cases of supected murder. Thus, if a murder has been committed on a boy of *nine* years of age, and some years afterwards the skeleton of a boy be found in digging near the spot, however the presumptive evidence of the murder may be thus strengthened by such a circumstance, yet, if the third molar tooth be still in the jaw, or, rather, have never protruded, this skeleton cannot be received in proof of the murder, as the person to whom it belonged could not have passed his seventh year. Such is the simple method of determining, by a physiological fact, the responsibility of individuals accused of capital crimes in *early* life.

In the law of England, theoretically speaking, there is no period in the extremity of age in which a person is regarded *beyond* the limits of even the ordinary legal punishment for crime, although a distinction, founded on the age of the party, is in some respects acted upon. In the French penal code no person, after the age of seventy, can be sentenced to transportation or hard labour; and when a person condemned to hard labour attains the age of seventy he is relieved from it, and placed in a prison for the remainder of his life. But although no medical criterion exists to determine the exact period of old age when no record of age exists, and although the criminal laws of this country do not require such proof, yet circumstances occur in civil cases in which the debility of a person is to be decided upon, namely, whether it depends on age or disease, consequently the distinction should be known. As old age advances, the bulk of the body diminishes; those muscles which maintain its erect position lose their tone, so that the individual bends forward; and as the muscles, along with diminished vigour, become less susceptible of impression, and, consequently, do not respond to the will, the step is tottering, feeble, and slow. From the condition of the circulation, also, the temperature of the body is much lower than the natural standard of health in the earlier stages of life, and, therefore, the extremities are cold and torpid. This depression of the animal temperature is one means of distinguishing the condition of the muscles induced by age, from that caused by the wasting of disease; the latter is always accompanied with some degree of febrile action, from which the former, namely, old age, is free. Second childhood now appears, the teeth having gradually dropped out, and their aveolar processes being obliterated, the lower jaw curves upwards as in early infancy; the neck is no longer able to give due support to the head; the voice has again acquired the feeble treble of childhood, "pipes and whistles in his sound," and either obstinate constipation takes place, or the alvine excretions, and the discharge of urine, are passed involuntary. The testis, in the male, cease to perform their functions, and are often wholly absorbed, whilst the prostate gland is liable to a morbid enlargement. In the female the ovaria shrink and lose their vesicular structure, and the mammæ are so completely absorbed, that sometimes even the nipple disappears. At length the intellectual faculties become more and more enfeebled, in nearly equal pace with the torpor of the body. Judgment, memory, reflection, and the reasoning power, depart; the mental sensibility is blunted; the ties of friendship, the beauties of creation, cease to interest or to please; and a complete wreck of all the exalted faculties of intellect levels the statesman and the philosopher with the infant or the idiot,—

"From Marlborough's eyes the streams of dotage flow,
And Swift expires a driveller and a show."

or man, the lord of the creation, remains a mere vegetating animal, waiting his final destiny, *death without disease*.

It must ever be kept in mind that extraordinary exceptions to the general rule have occurred, and are recorded. CRATERUS, the brother of ANTIGONUS, in seven years was an infant, a youth, an adult, a father, an old man, and a corpse. THOMAS HALL, of Willingham, near Cambridge, at one year of his age had the signs of puberty; at three, was four feet high, well-proportioned, possessed great strength, and a powerful voice; and before six, died apparently of advanced age. When I was a student of medicine, I knew a person of the name of GRANT, a fishing-rod maker, who was upwards of one hundred years of age, and yet enjoyed vigorous health and all his faculties. JENKINS, our countryman, enjoyed a powerful frame of body

when about a 100, and lived to 169; and old PARR married at 120, retained his full vigour at 140, and died, not of disease, but of plethora, from repletion, at 152. But these are rare exceptions, the natural average of life, when it wears naturally to its decay, is about 84 in temperate climates. Between the tropics it seldom exceeds 60, yet the Mexicans not unfrequently reach their hundredth year, and although severe cold is not generally regarded as favourable to longevity, yet many individuals in Russia have attained to 120 years of age.

A more important subject of inquiry, and one of more frequent occurrence than criminal responsibility, is the determination of the age of *puberty*, legal questions depending upon this point being numerous. It is that period which immediately succeeds *boyhood*. In this climate, it commences at fourteen years of age in males, and at twelve in females. At this period, all the organs of the body are fully developed; the sex of the individual is decidedly proclaimed by the appearance of the bodily frame; the sexual instinct is awakened, and man becomes capable of reproducing his species.

In the *male*, the approach of puberty is indicated by the voice losing the treble of boyhood, and acquiring a deeper, fuller, and more sonorous tone,—a change which is accounted for by the aperture of the glottis becoming doubled, both in length and in breadth; the chin, which before was free from hairs, becomes downy, and, by degrees, is covered with the beard; real semen begins to be secreted; the external organs of sex acquire the magnitude which they afterwards possess, and the pubis is covered with hair. That these changes are connected with, and dependent on, the state of the generative organs, is very evident, as they do not take place when the testicles are removed previous to the period of puberty. There are, nevertheless, many exceptions to those appearances that I have detailed as denoting puberty in the male. Instances, for example, have occurred in which the beard has never appeared, and the pubis has remained uncovered by hairs, yet all the powers of virility have been displayed. I know a gentleman, a very handsome, powerful man, the father of a large family, who is now upwards of fifty years of age, and has never had occasion to use a razor.

In a medico-legal point of view, it is of importance to know that the age of puberty is the period of life when hereditary diseases are most likely to display themselves, particularly *phthisis* and *insanity*. The moral changes which occur at this time, in the male, are as striking as the physical. Accompanying an augmented susceptibility of the nervous system, along with sexual appetite, the mind becomes alive to the more refined passion of love; at the same time, it acquires more steadiness and vigour, and all the habits assume a more manly character than in boyhood.

In the *female*, from the twelfth to the fifteenth year, in this climate, puberty displays itself by the greater determination of blood to the mammæ and the uterine system; the bosom enlarges, consenting with the change in the uterus, which now begins to secrete the menstrual discharge, and to be fitted for impregnation. As in the male, Nature having completed that condition in the reproductive organs which fit them for their functions, the energies of both the body and the mind seem to receive a fresh impulse; the eyes brighten, and swell with moisture; the cheek is spread with a fresher bloom; the lips "breathe deeper sweets;" the voice, from a moderate extension of the glottis, becomes fuller, but more harmonious; the breasts swell; the hips and limbs acquire a beautiful rounded form, and the movements and attitudes become graceful and attractive. The mind of the young female now ceases to engage in childish pursuits; feelings, hitherto unknown, thrill through her frame, and awaken those desires which have been wisely implanted in the constitution of both sexes, for the continuance and increase of the species. The appearance of the menstrual discharge indicates puberty in the female; it always occurs at puberty in the healthy female, unless there is some malformation of organs; and, notwithstanding the assertions of some writers on natural history, I believe, with BLUMENBACH, that this discharge is peculiar to the human female,—the apparent menstruation, in some species of Simiæ, observing no regular period.

Such are the usual symptoms marking puberty; and it is true that, under ordinary circumstances, the period of life is that of fourteen years of age in males, and twelve in females, yet the real existence of this condition of the system is liable to be controlled and modified by a great variety of both moral and physical causes, operating in both sexes; and these require to be familiar to the medical jurist. They are, chiefly, *climate*, *temperament*, *original conformation*, and *habits of life*.

1. There can be no doubt of the powerful influence of *climate* on the animal economy; it is rendered obvious by the effects which a change from one climate to another produces on all the functions of the body, the *circulation* of the blood, the *energy* of the nervous system, the *secretions*, the *excretions*, even on the *temperament*, and the *qualities* of the mind. It is not, therefore, extraordinary, that it should modify greatly the period of puberty. In northern latitudes, and even in southern, in elevated, exposed situations, the period of puberty is retarded in boys until the age of eighteen. In Norway boys are regarded immature until twenty years of age. In warm climates the opposite effect

takes place; and whatever produces great mental excitement, is apt to render puberty precocious. BALLARD, a French writer, mentions an instance of a female attributing her pregnancy to a boy of ten years of age,—a circumstance which he attributed to the boy having engaged in the turmoil of the Revolution.

But it is in the female sex that the influence of climate on puberty chiefly displays itself. Heat has a most powerful influence on the maturity of animals; but in the human animal much is also due to education, manners, and moral discipline. In the peninsular region of India, in Java, and in the tropical islands, girls begin to menstruate so early as eight and nine years of age; but when these girls have been early removed to Europe, after having once menstruated, the function has ceased, and not again returned until fifteen or sixteen years of age. In the temperate zone, the usual age is twelve to fourteen; and in Lapland and Norway it is rarely before the twenty-fourth year that menstruation occurs; and when it takes place the returns are at long intervals, and frequently only during summer. Thence heat has a considerable influence in bringing animals to premature maturity. In the cotton mills of Manchester and of Glasgow, which are kept at a high temperature, girls arrive early at puberty: thence the *occupation* and the *local position* of females should always be kept in view, in giving evidence, when a question as to their puberty is raised.

These local causes modifying the period of puberty are important to be known. In females who pass to other quarters of the globe, the habit more or less continues for a time, under the influence of the climate from which they came; and thence in criminal trials in which the question of female puberty is raised, the medical witness must always have reference to this fact. Thus, if we suppose a girl under thirteen years of age, a native of Hindostan, lately arrived in England, to be accused of infanticide, committed in this country, and no symptoms of premature precocity are very evident, a plea of nonage might be set up, and might defeat the ends of justice; but, if the medical evidence be aware of the influence of climate in hastening the period of puberty in a native of Hindostan, and that the habit continues to operate for some time after removal to a more temperate latitude, this plea could be no bar to judgment, if the other evidence were convincing; and, for the same cause, a Norwegian woman coming to this island, if her residence here had been short, could scarcely be *justly* condemned on a charge of infanticide under twenty years of age. The necessity, therefore, of attending to the influence of climate, in modifying the period of puberty, when delivering evidence in medico-legal inquiries, is obvious.

LECTURES
ON
MATERIA MEDICA AND THERAPEUTICS,
NOW IN COURSE OF DELIVERY
AT THE
WINDMILL-STREET SCHOOL OF MEDICINE.
BY
GEORGE G. SIGMOND, M.D.

LECTURE V.

Opium:—First Teachers of its Uses; its History as a Therapeutic Agent; its Production and Use in the East; its Cultivation in Europe; the best kind.—Ill-regulated Proceedings of Chemists, in Science.—Analyses of Opium; its Constituents.—Best Mode of obtaining Morphia.

OUR doom on earth is labour, pain, and sorrow. The more anxiously the inquiring intellect of man surveys the universe before him, and the more intensely he scrutinizes the hidden mysteries by which he is surrounded, the more firmly does the conviction settle upon the mind, that such was not always his lot. That awful judgment is then recalled to the conscious mind, and he knows and feels its truth: "Cursed is the ground for thy sake; in sorrow shalt thou eat of it all the days of thy life." But his consolation is, that his punishment was tempered with mercy, and that boon was not recalled, "Behold I have given thee every herb bearing seed which is upon the face of all the earth, and every tree which is the fruit of a tree yielding seed; to you it shall be for food." Such reflections naturally take possession of the mind, when contemplating the power given us, of assuaging the acutest sufferings of our helpless nature by the administration of a simple juice, the produce of the humble poppy, and which, in the land of its growth, has obtained, from the submissive believer in an unerring Providence, who has predestined all things, the name of "Masch-Allah," *the gift of God.*

It is one of the most honourable boasts of the physicians of this country, that the whole medical profession of Europe acknowledges that *they* first taught the proper treatment of inflammation by active blood-letting, and the cure of intermittent fever by bark, and that the English physicians are likewise to be venerated as having first disseminated a proper knowledge of the inestimable value, in the healing art, of opium; and though in the present day its virtues are not sufficiently estimated, or the art of properly administering it is forgotten, MURRAY of Göttingen has celebrated the praises of our predecessors, "Anglorum experientia multa

opii virtutes, antea ignotas, in nostrum cognitionem primum pervenisse, fatendum est." He has pointed out the first teachers of its uses, and their names may well be the glory of an intellectual body of men: SYDENHAM and MORTON, FREIND and MEAD, PRINGLE, WHYTE, and LIND. This is more particularly to be noticed, because foreign physicians received this drug with considerable doubt, and by no means placed any reliance upon its efficacy. It is true that PLATER had commended it, and that SYLVIUS was loud as to its merits, which he had learnt from VAN HELMONT, but to such an excess did he carry his enthusiasm, that he obtained amongst his cotemporaries the name of "the Opiate." PARACELSUS had previously successfully employed it. Probably these learned men had been somewhat extravagant, or too general, in its praises; for until BOERHAAVE, with much moderation and little theory, recommended it, scarcely any attention was paid to it. His pupils, and amongst those were VAN SWIETEN and DE HAEN, followed their venerated preceptor in his views, and it was afterwards very generally received and freely employed. That STAHL should oppose it, was not at all surprising,—all novelties in practice he regarded with horror. He was one of the school of bigots, at one time the guides and leaders of science in Europe, but of whom none remain at the present hour; but their place is supplied by the lovers of every thing that is new and wonderful under the sun, who try every new remedy, and abandon it with as much precipitancy as they at first embraced it, when any new candidate for universal reputation as a panacea presents itself. STAHL was certainly the most inflexible opposer of every new doctrine. He declaimed against iron, ammonia, mercury, opium, and bark, which latter he declared produced hectic fever in the thin, and dropsy in the fat subjects of our medical art. JUNCKER assisted in vituperating opium, without, however, diminishing its reputation in the eyes of the candid and examining physician. I need scarcely allude to the early employment of opium as a narcotic medicine, with a view of entering into any historical disquisition; you will find in LE CLERC'S History of Medicine all that is necessary to be known: certainly, HIPPOCRATES did not use it as such, although a cotemporary, DIAGORAS, did. CELSUS appears to have had some objections to the administration of narcotics, and his descendants, the surgeons, seem to have inherited the feelings of their first great writer; for, on looking through their writings, you will be struck with their inattention to the powers of this drug. It is true that, generally speaking, it is only within a few years they have learnt the effect of general treatment upon local disease, and that they are beginning to abandon the use of instruments on every occasion; that they have now a greater insight into the employment of medicine; and that, for instance, in spasmodic stricture of the urethra, the constant introduction of an instrument, which has been the source of such large fortunes to some individuals, is abandoned for a healthier and safer practice. ÆTIUS, ALEXANDER TRALLIAN, PAUL of Ægina, very rarely commend opium. It enters, however, into the composition of the Philonium of Mithridate, of Theriaca, of the pills of Cynoglosse. The Arabian physicians were well skilled in its administration.

The poppy seems to have been cultivated in gardens, as early as the days of HOMER. That it was grown at Rome, before it became a republic, is ascertained from the well-known illustration that TARQUIN gave of his policy, in cutting off the heads of his poppies as he proposed to do those of his aspiring enemies. It seems to have been grown largely in the farms in Italy, for we find VIRGIL, in the Georgics, alluding to it thus:—

"Necnon et lini segetem, et cerealе papaver
Tempus humo tegere, et jamdudum incumbere aratro."

That he was aware, too, of its narcotic property, the following line proves:—

———"Lethæo perfusa papavera somno."

But the seeds were the inducement to carry on the cultivation of the poppy. They seem to have formed an article of food of no small importance, and in the days of DIOSCORIDES they were thus employed. This is also the case even to the present day, not only in Persia, in Egypt, but also in Poland, Silesia, Hungary, and even Italy. They are formed into little cakes, or bread is sprinkled with them. LE CLERC thinks they possess some narcotic property, which is dispersed by fire; but VAN SWIETEN asserts that they have no such quality, that they may be eaten with impunity, and that a pound may be made use of. The seeds are bland, inodorous, and of an agreeable flavour, but the unripe seeds are said to be dangerous. By expression they yield an oil, which has been used as a substitute for butter, without producing any deleterious effect. It is employed by watchmakers under the name of Oil of Ben. It has been computed that each plant will yield upwards of 3000 seeds.

The white poppy, or papaver somniferum, is a native of Asia. It is an annual plant, rising to a height of five or six feet, flowering in the month of July. It is cultivated to a very great extent, for the purpose of commerce, in Asia Minor. We learn, from the exceedingly interesting, and, as we have now occasion to know, the very correct history of his travels given us by Sir JOHN CHARDIN, that even in the year 1670 it was cultivated at Agoum. When speaking of the love of the Persians for opium, of the extravagant follies of which they are guilty when intoxicated with the drug, he says they obtain it

from Afioum, from whence its present appellation has sprung. His narrative of the effects of opium, his description of the cabarets or shops in which men of all ranks and gradations indulge in the licentious use of opium, corresponds precisely with what is described at the present hour. In the territory of Afioum Kara Hissar, and throughout the whole of that pachalik, and in the neighbouring provinces, the poppy is the great object of culture, and of laborious attention. Within the last four years, the government has unfortunately monopolised the commerce, which was previously free. There is, however, an immense contraband trade carried on, and there is no deficiency in the supply either of the Oriental or European markets.

During the last session of the Institute of France, a very interesting memoir was read in the Académie des Sciences, from Mons. Texier. He received, whilst at Constantinople, an invitation from the Mousselim to visit Afioum Kara Hissar, for the purpose of inspecting the celebrated poppy-farms. He determined to avail himself of an opportunity which has been rarely offered to a scientific traveller. He accordingly arrived there on the 2d July, just at the moment which is interesting to a medical man. He spent four days there, and examined very minutely the mode of cultivation and of incision. He describes, in his dissertation, the geological formation of the country, and its general aspect, which is that of an extinct volcano. There is throughout the tract of country a great variety of soil, nor does it appear, from his observations, that the poppy requires any peculiar condition of land; the temperature is at no time very high, and the snow often remains on the earth for some months. He gives it as his opinion that the poppy would well bear the temperature of France, and be equally productive. The great injury to which the crop is liable is from rain, which, should it occur to any great extent in the months of May and June, would destroy all the hopes of the grower. As the irrigation does not depend upon canals, the variations in the quality of opium would also be considerable in the event of long-continued drought. A few days after the flower has fallen off, the husbandman makes an incision into the capsule of the poppy; immediately a white fluid exudes. The plant is then left for a day and a night, during which exudation goes forward. Each poppy-head gives forth opium once, and then only a few grains. They then collect, with large knives, the juice which has acquired a brown colour. The first sophistication of at least ten which, M. Texier tells us, it has to undergo, now takes place, for the peasant takes care to scrape off a good portion of the epidermis of the poppy-head, to increase the weight of the opium. It is then not unlike a viscid jelly. They place it in earthen vessels, and, by way of keeping up the proper moisture, they pay the delicate attention of spitting into the jars, — an operation which naturally called forth a question from Mr. Texier, whether a little water might not be considered a fair substitute for the saliva? These experienced manipulators very tranquilly assured him, that the goodness of the opium was materially influenced by their secretion. The opium is then wrapped up in large leaves, and in that state is sent to Smyrna or to Constantinople. The seeds of the poppy that has thus yielded its opium are useful for sowing in the following December. This is the latest and best description of the culture of opium. There are some accounts of the growth of the poppy and the mode of incision in India, in various publications, but they seem all copied from each other. The authority of Mr. Kerr is principally depended on. He estimates the produce of a single acre there at 60lb. of opium. Kæmpfer is likewise looked upon as giving a good description of the treatment of the poppy; but the lines of old Æmilius Macer appear to be quite as descriptive of the mode of obtaining opium in the present day as they were then:—

"Ex hujus teneris faciunt opium capitellis,
Incisa leviter summa cute, lacque quod inde
Defluit, accipiunt cochleis, siccumque reservant
Antidotis multis aptum, variisque medelis."

The poppy has been assiduously cultivated by botanists, and by medical men in different parts of Europe, with a view of ascertaining whether opium might not be obtained from it equal in value to that which is procured from the East; and in almost all the various experiments that have been detailed, we learn that very excellent samples have been the result; but the scale on which these attempts have been carried on, is necessarily so very limited, that I hardly think we have any right to arrive at the conclusion that it can be made an article of culture, which may be at all likely to supersede that which commerce now brings to our doors. Alston succeeded in Edinburgh, and it has been tried in England on more occasions than one. In the year 1796, Mr. John Ball, of Williton, was rewarded by the Society of Arts for procuring opium in an unsophisticated state from British poppies. Dr. Latham and Dr. Pearson pronounced that it was quite as efficacious as the foreign drug. Mr. Jones, at a later period, likewise laid before the Society some specimens of opium obtained from poppies grown at Enfield, which was declared by the committee of chemistry to be equal in quality to fine foreign opium; to judge, however, from the letter which he laid before the Society, he had to encounter very considerable difficulties, owing to the extraordinary rain and winds which occurred during the summer he was trying his experiments; but he says this ought not to discourage others, as it was quite accidental. From

various attempts that have been made, it appears to me that our climate is not adapted to its culture, and for many unsuccessful years one or two favourable ones would not repay the grower. The year 1817 was remarkable in the neighbourhood of London for the fine appearance of the poppies, the extract was particularly good, and it was attributed to the weather being unusually clear and fine; indeed, from the 2nd of June until the autumn, there was a sunny, temperate time, exactly adapted for vegetation. FALK, at Stockholm, HALLER, at Göttingen, LINDELSTOFFE, at Carlstadt, have given to us the result of their observations; they all of them have raised the poppy in their respective gardens, have made the incision, obtained opium, and used it in medicine successfully. At Naples they seem to have been very sanguine, and to have expected to have been able to make their experiments subservient to the supply of the country. TENORE and SAVERY took considerable interest in it. In Sicily, PRESTANDREA superintended the cultivation, and describes a very useful instrument with which he made the incision: his facts and experiments are detailed in the "Giornali di Scienza."

The two principal varieties of the drug which find their way into our market, are the Turkish and the Egyptian. The Indian comes here occasionally, but the greater part of it is sent to China; I have likewise seen other sorts, but they are rather in the cabinets of the curious than articles of common occurrence, such as the Persian, in long cylindrical rolls.

Of the Turkish and the Egyptian, the first is by far the best, and its price is higher, usually about four shillings a pound dearer, and it is superior in all its qualities. It comes to us in round, or oval, flat pieces, and generally some leaves, either of tobacco, or of some species of rumex, adhere to it. You may judge of its quality by its weight, and by its characteristic odour; but you must likewise be aware, that to increase its weight the exporters add all kinds of rubbish, sometimes marble dust, leaden bullets, stones, and copper coins. Good opium is very plastic, and on feeling it you should examine whether there are any hardened masses, for it should be equally soft and yielding at all parts. None is good but what is perfectly soluble in water. Occasionally, more particularly in the Egyptian variety, there is a hard glutenous mass, which becomes still harder by keeping, and is scarcely to be dissolved in cold water. If it has dark-brown, or black patches, if it has a sweet, mawkish taste, and has rather an empyreumatic odour; it is not good. The adulterations and sophistications are very numerous. Aloes, with extract of belladonna, or hemlock; gum arabic, or tragacanth, with extract of lettuce; extract of poppies, or liquorice, all are substituted, and sometimes even the dung of sheep and oxen.

Few subjects have excited amongst medical men greater attention than the labours of the chemists to ascertain in what particular part of a plant its virtues reside, and by analysis to obtain it from the bodies with which it is united. In some instances it has led to most important and valuable accessions to our science, and placed in our hands new instruments by which we can combat disease; but, again, some bad effects have arisen out of these discoveries; there has been a want of uniformity in the various preparations, and there has been no inquiry conducted on clear and just principles, which would enable the whole profession to form a sound and wholesome judgment. One man announces in one of the most active poisons, a salutary and useful remedy, but no one else finds himself equally successful, and this is owing to the different processes pursued in obtaining it. Again, chemists have appeared before the public before the complete analysis of a vegetable has been obtained; they have fancied each stage of that analysis the end of the journey, and the consequence has been, that there appears to be a multiplicity of discoveries, which turn out, after all, to be merely unfinished inquiries. Some short time since, the ultimate analysis of opium was pronounced to have proved the existence of three bodies only, morphine, narcotine, and meconic acid, as the peculiar principles: the list has now swelled up to twelve. It forcibly reminds us of the language which that observant chemist, Sir HUMPHREY DAVY, has made use of, nor can one be surprised that his sagacity and high intellect saw the ridicule such a state of chemical science must excite; he has placed the following sentence in the mouth of one of the persons in a dialogue, in the Consolations in Travel, or the Last Days of a Philosopher:—"I once began to attend a course of chemical lectures, and to read the journals containing the ephemeral productions of the science; I was dissatisfied with the nature of the evidence which that professor adopted in his demonstrations, and disgusted with the series of observations and experiments which were brought forward one month to be overturned in the next; in November there was a zugiberic acid, which was in January shown to have no existence at all; one year there was a vegetable acid, which was shown to be the same as an acid known thirty years ago; to day a man was celebrated for having discovered a new metal, or a new alkali, and they all flourished like the scenes in a new pantomime." In tracing the steps which have led to the analysis of opium, which is now received as the correct one, I do not think it would be at all advantageous to

you to detail any of the circumstances which are known previous to the year 1803. From the days of NEUMANN, up to that period, almost all the experiments that were made were crude, ill-digested, and produced no good effect. All the practical purposes to which opium could be applied were investigated with great labour and with great assiduity; but although the medical men who employed it were anxious to obtain every information, they do not seem to have understood upon what principle they should direct their inquiries. Numerous are the persons I could mention to you who have written on the subject, and to whom you may wish to refer; amongst those, WEDELIUS, Dr. CRUMPE, JONES, LE MORT, BUCHNER, and CRELL, are principally to be enumerated.

It was in the year 1803, that DEROSNE announced that he had procured from opium a peculiar matter, white, crystallizable, and of uniform composition, which he then imagined to be that peculiar principle in which reside all the therapeutical and toxicological powers by which that drug is so strongly characterised. In the following year SEGUIN read a dissertation before the Académie des Sciences, in which he pointed out the existence of the most energetic constituent of the drug; he explained the method by which it was to be obtained; he very satisfactorily showed what were its essential and distinguishing characteristics. Here he stopped; and, according to the laws of discoverers, he lost that claim to which he would otherwise have been justly entitled, of being looked upon as the first discoverer, for he did not affix to this substance any name. Had he ventured to call it by any title, to him would have been awarded the merit due to the first observer of that constituent principle which has since been known to us under the appellation of Morphia. To SEGUIN it is, also, that we owe our acquaintance with meconic acid, although in this, as in the former case, SERTUERNER, of Einbeck, in Hanover, carried away the honour of the discovery in 1816. The French chemists always speak with some degree of mortification when, with the honesty which should always accompany science, they prove, that if France cannot actually claim the reputation, her chemists were on the eve, and really deserve the merit of first knowing the important constituents of opium. It was, however, SERTUERNER, a German chemist, by whose patient labour and industry the real nature of morphine was unfolded: he placed his discovery upon the firmest basis, for he showed that it possessed the property usually attributed to alkalies, of combining with acids, and of forming, when thus united to them, neutral salts. SERTUERNER did not hesitate to give to the scientific world a memoir which, of course, attracted considerable attention. GAY LUSSAC very properly committed to ROBIQUET the important duty of investigating and substantiating the facts thus announced by the German chemist. To no individual could such a task have been entrusted, whose capability and judgment would be more appreciated than ROBIQUET. He commenced his labours, and the first question that he felt called on to inquire into was, what was the nature of the substance that DEROSNE had discovered in the year 1803? It was proved, even by the process that SERTUERNER had pursued, that it did exist, but that chemist had not acknowledged it to be a constituent principle of opium; he had given it as his opinion, that it was a submeconate of morphine. The next question upon which ROBIQUET was to decide was, what was the real nature of the principle which SERTUERNER had discovered, and of which he had given a description.

The results of the investigation, most carefully and philosophically pursued by ROBIQUET, were considered to be highly satisfactory, and have been universally appreciated. His experiments proved that morphia is an alkaline basis, capable of saturating acids, and of forming neutral salts; that the salt discovered by DEROSNE was not a submeconate of morphia, but that it was a peculiar principle, and that there was also a peculiar acid existing in opium, namely, the meconic. These analyses of SEGUIN and ROBIQUET were universally recognised, and, for a time, the inquiry was considered conclusive, until M. PELLETIER feeling, that after fifteen years the science of chemistry had put into his hands a greater number of agents, by which analysis might be carried on, determined to become a labourer in so important a field of investigation; he has been followed by COURBE and others. PELLETIER's analysis, in 1832, gave us the results which I shall now mention to you,—morphine, meconine, narceine, meconic acid, a brown crystallizable acid, peculiar resin, oil, caoutchoric gum, bassorine, and ligneous fibre. During the last session of the *Medico-Botanical Society*, a paper from his pen, translated by Mr. FOOTE, announced his observations on paramorphine and pseudomorphine, the latter of which does not always exist. It would ill become me, as having little opportunities of pursuing an inquiry into an analysis of opium, to make any observations upon Mons. PELLETIER's views, but I shall confine myself to enumerating those constituents which I myself have seen when obtained, and of describing the outline of the processes by which, according to the first chemists, they are best procured. I have made all the inquiries upon the subject, and have examined into it with all the attention that I have been enabled to give; the difficulties attendant upon real personal acquaintance with all the points connected with it, are such that no one, not super-

intending all the stages, could undertake accurately to describe the processes, which are only carried into effect satisfactorily by practised chemists, upon a very large scale. However frank and honest may be the communications made by the individuals who conduct these operations, there must necessarily be many particulars which can only be known by manipulation and by experience. In speaking of the principles contained in opium, I must particularly thank Mr. Morson, of Southampton-row, for the kindness with which he has communicated with me; and amongst those from whom I have had occasion to seek information, I must acknowledge him as most willing, and, from the largeness of his operations, very capable of imparting it. There are, indeed, very few in London who have much experience, and it is only from copying one from the other, that much acquaintance with these points is derived.

The constituents which at this moment I am led to recognise as existing in opium or morphia, narcotina, codeia, narceia, meconia, thebaia, meconic acid. How long these may continue to be the sole principles I know not; but in enumerating these I am borne out by the testimony of the distinguished Professor in the Royal Institution of Great Britain, Mr. Brande, who, I observe, in the last edition of his Manual of Chemistry, gives them the sanction of his recognition. I have now to explain to you the methods by which these are to be obtained, so that their actual existence may be demonstrated to you. Two of these principles appear to be well-defined alkaloids, at least they possess that striking characteristic of unity with acids, and forming neutral salts. These two are morphia and codeia. Various are the processes which have been enumerated for obtaining them. That of Dr. Gregory and of Dr. Robertson seems to be considered the best. The first step in all cases is the proper solution of opium in water. Muriate of lime is added to a concentrated solution, by which agent the meconic acid, and the very small quantity of sulphuric acid which exists, are thrown down, so that meconate of lime, and a minute proportion of sulphate of lime, fall to the bottom of the solution, in which muriate of morphia remains dissolved. To obtain this muriate of morphia the solution is then evaporated to the crystallizing point. The other alkaloid, the codeia, accompanies the muriate of morphia and crystallizes with it. The muriate of morphia is of a dark-brown colour when it is thus obtained, the crystallized mass is then pressed to get rid of the colour, and the process of crystallization is repeated until it becomes perfectly white. The next step is to obtain, from the two mixed muriates of morphia and codeia, the morphia; this is done by dissolving them in water, adding ammonia, by which means the whole of the morphia is precipitated, but the codeia remains still in solution. This liquor is then evaporated down, and then the muriate of ammonia, the codeia, and any proportion of morphia not thrown down will crystallize; on the addition of caustic potash the morphia will be decomposed, the ammoniacal salts dissolved, and the codeia be precipitated. The codeia is to be purified in ether, from which it crystallizes.

The essential characteristics which mark morphia and distinguish it are, that it crystallizes in prisms from its alcoholic solution, that it is but little soluble in water, that it is insoluble in ether, and that it is perfectly dissolved by potassa or soda; this distinguishes it altogether from narcotina, with which it may sometimes be found, but which is not the case when obtained by the process I have just attempted by description to explain to you; it gives a deep-red colour to nitric acid, and one of the most beautiful blues to muriate of iron by candle-light; though it has more greenish-hue by daylight; these tests will fully distinguish it from all other of the alkaloids.

According to the excellence of the opium will be the quantity of morphia contained, about 100lb. weight of the drug will yield from 120 to 150 ounces of morphia, and, according to Robiquet, about six ounces of codeia will be obtained from 100lb. of opium also. The salts that have been obtained by combination of morphia with acids that have been noticed are, sulphate of morphia, bisulphate, muriate, nitrate, phosphate, and acetate; and they are obtained by dissolving the alkaloid in diluted acids. Opium contains three other principles which may be considered neutral, neither possessing acid nor alkaline properties. Narcotina, the salt originally discovered by Derosne; meconia, by Couerbe and Dublanc; narceia, by Pelletier; and, lately, a fourth, by Couerbe Thebaia. Narcotina is found very abundant in many varieties of opium, sometimes as much is found as of morphia in others. The other three principles, meconia, thebaia, and narceia, exist in very minute quantities. Narcotina is procured by the action of hot ether upon opium, which extracts this principle in a pure state. It may also be precipitated from a solution of opium by means of caustic potash, taking care not to add more than may be sufficient to saturate the free acid. Narcotina is soluble in the acids, also in alcohol, ether, and the oils, and is crystallizable from them all: it has an intensely bitter taste. Meconia crystallyzes in prisms, and narceia in silky crystals: they are obtained from the liquors of the first pressings of the muriate of morphia.

From the meconate of lime, which I spoke to you of as having been precipitated in the decomposition on making morphia, meconic

acid is obtained. Meconate of lime is dissolved in concentrated muriatic acid at the boiling point, taking care, however, that it is not in actual ebullition; it is then filtered, and is repeatedly treated with muriatic acid, until it is completely destructible by heat. The meconic acid will then be obtained in reddish-brown scales, and to be made perfectly pure and white, it must be united with caustic potash, and a meconate of potash be formed, from which it must be repeatedly crystallized until it is perfectly white; it is then decomposed by frequent treatment with muriatic acid, and thus is obtained a perfectly white and pure meconic acid, which, by boiling, is converted into metameconic acid, by sublimation into pyromeconic acid. Meconic acid becomes a most delicate test for salts, soon producing an intense red colour.

In the *Journal de Chimie Médicale* for September, 1835, will be found the observations of M. Pelletier on paramorphine and pseudomorphine; but I have had no opportunity of meeting with any English chemist who has gone over the same experiments, and, therefore, I can say little on the subject, but that he states, that paramorphine comes nearer to narcotine than to any other of the principles, and pseudomorphine to morphia.

In the *Journal de Pharmacie* for 1833, will be found Robiquet's observations on Dr. Gregory's mode of obtaining morphia, and likewise a translation of the original paper, describing the operation of which I have ventured to give a slight sketch, fully aware that the chemist only can explain fully all the steps. M. Robiquet has borne out the preference generally given to the process. Two advantages seem to result from it: the first, that a larger quantity of morphia is obtained, and the employment of alcohol, always so expensive in this country, avoided. M. Robiquet observes, that the first trial he made convinced him that the opium employed by Dr. Gregory, was of a superior quality to that which has been used in France for some years, and not only that ours contain more morphia, but that the proportion of narcotine is considerably less. He expresses his want of information as to the causes that produce this, whether it be dependent on the species of the poppy, the diversity of climate in which its cultivation is pursued, or upon the mode by which the opium is obtained, or upon some sophistication by adding the opium obtained from the indigenous plant. In order to satisfy himself, he wrote to Dr. Gregory for a specimen of the opium on which he had operated, and which was immediately sent to him, with an explanation, that, as the muriate of morphia was only employed by the medical men in Edinburgh, he did not attempt to obtain the morphia isolated, but in combination with the muriatic acid; this did not explain the difficulty that Mr. Robiquet had found in obtaining a larger quantity of the morphia. He concludes his paper by stating, that he thinks Dr. Gregory's process merits preference from its economy, its simplicity, and its facility of execution; but that he is inclined to believe that the larger quantity of morphia obtained is in some measure owing to the superiority of the opium which is found in this country; and he calls upon the Society of Pharmacy, where his report was read, to return its thanks for the labours of Dr. Gregory, which merit the approbation of chemists.

LECTURES
ON THE
PHYSIOLOGY OF THE NERVOUS SYSTEM,
DELIVERED IN 1836, IN THE COLLEGE OF FRANCE.

By M. MAGENDIE.

Lecture VI.

Communication of the Ventricles of the Brain with the Subarachnoid Cavity, and not with the Cavity of the Serous Sac.—How the Cerebro-spinal Fluid arrives in the Lateral Ventricles.—Passage of Blood into the Ventricles in Cerebral Hæmorrhage. Points where the Cerebro-spinal Fluid exists in largest quantity. Imperfect Mode of Teaching Physiology. The Lecturer's Early Studies.—The Process of Vomition.—Examination of the Cerebro-spinal Fluid in the Living Animal.

Gentlemen:—You are all, without doubt, acquainted with the anatomical fact, that the veins of the choroid plexus terminate in the veins of Galen, which latter pass on to the torcular herophili. It was at this point that Bichat described a small opening, through which the external arachnoid passed into the ventricles. It is certain that we very frequently find, in this particular place, a kind of fold, formed by the arachnoid, and that Galen's veins, placed on the median line, seem supported by a little falx of the same membrane, or species of cul de sac, which in many other cases is absent; but it is impossible to show that this is an opening, as Bichat imagined, or a canal of communication between the external arachnoid and the lining membrane of the ventricular cavities; and the experiment he quotes of exploration with a blunt-pointed probe turned against himself, for, on the one hand, it is not true that on opening the canal we arrive at the cavity of the ventricles; and, on the other, it seems extremely probable, if not certain, that it is the probe which makes this pretended opening, and nothing else.

With the simplicity of a man firmly convinced of what he says, BICHAT assures us that the opening is found by executing a slight rotatory motion with the probe, while he never imagined, or perceived, that it was the very movement he recommends which practices the opening. According to the theory of BICHAT, the canal opened in a point of the ventricular cavities that was quite indeterminate. Here his good sense pointed out a fact; however, he thought it communicated with the middle ventricle somewhere in the neighbourhood of the pineal gland. If this anatomical fact really existed, it should harmonize with pathological experience; hence BICHAT endeavoured to explain why the fluid contained in the ventricles does not communicate with the great cavity of the arachnoid, even in cases of most extensive effusion of serum into the ventricular cavity; and with this object he offered a mechanical explanation of a very faulty kind, saying, "that as the fluid in the ventricles augmented, it shut up the orifice of the canal by the pressure it exercised on its parietes." This, however, is not the only anatomical error which we find in the general anatomy of BICHAT, but they are lost, or thrown into the shade, by the multitude of beautiful truths by which they are surrounded.

We uphold, then, that the ventricles of the brain communicate with the sub-arachnoid cavity, and not with the cavity of the serous sac: our assertion is a rigorous conclusion, if we have demonstrated that they do not communicate with the latter. When you examine the inferior portion of the cerebellum and the medulla oblongata, you find that the fourth ventricle is principally contained between these two parts, which also embrace its opening. About the middle of the level of the fourth ventricle, we constantly find an orifice through which we might introduce the tip of the small finger, or the extremity of a pen; it is sometimes divided by the trunks of vessels passing from the medulla oblongata to the cerebellum, or it may be masked by folds of the membranes. However, it always exists, and forms an evident communication between the subarachnoid cavity of the spinal marrow and the fourth ventricle of the brain, and whenever it is absent we should attribute its disappearance to some pathological condition of the membranes; there are, in fact, some phenomena which seem to demonstrate that an abnormal membrane sometimes forms what I call the opening of the ventricles; it is here that the fluid passes from the spinal marrow to the cerebellum, from the fourth ventricle to the aqueduct of SYLVIUS, and thence to the other ventricles of the brain. In this manner it follows the cellular tissue immediately in contact with all these parts, and anteriorly descends along the infundibulum, which, as you know, passes down from the floor of the third ventricle to the pituitary gland.

In the present state of our knowledge, we are completely ignorant of the uses which these several parts serve. Thus, for example, the function of the pineal gland is altogether enveloped in mystery; that of the pituitary body is also unknown, for we cannot admit the hypothesis to which its existence has given rise. We are also unable to say what office the infundibulum may fulfill. Perhaps one day or another, by studying the properties and effects of the cerebro-spinal fluid, we may arrive at some useful discoveries on these obscure points of physiology; if imbibition be necessary for the manner of existence of our several parts, a well-directed series of observations on this point may not be without fruit.

Now, consider how the fluid may arrive in the lateral ventricles. This is a question which has not as yet been solved in a very clear manner, and I have met anatomists who found considerable difficulty in answering it, because their attention had not been fixed upon this point. The method of communication, however, is easily established through the medium of the third, or middle, ventricle, into which the aqueduct of SYLVIUS opens. The septum lucidum, also, affords us a curious circumstance relative to the presence, or absence, of the cephalo-rachidian fluid. In some cases we find this septum, which, in a normal state you know to be excessively thin, distended to a considerable degree; in other cases, where the lateral ventricles contain a great quantity of fluid, the septum lucidum is more or less lacerated, or may even disappear altogether; and hence the conditions, as well as the proportions, of this part of the brain are intimately connected with the cerebro-spinal fluid.

It is not always easy to point out the openings by which the cephalo-rachidian fluid passes from the vertebral canal and cerebellum to the various cavities of the brain, which anatomists call ventricles. No matter how carefully we examine the septum lucidum and its surrounding parietes, we are unable to find the slightest trace of an opening leading into its cavity. Whence, then, is the fluid derived, which, in some cases, we find in such abundance between the two layers of medullary substance constituting the septum lucidum? This is a question to which we must confess ourselves unable to reply. We know that, externally, its walls are bathed by the fluid of the lateral ventricles; but we cannot comprehend how or where the external fluid finds an ingress. Some anatomists, it is true, describe an orifice of communication; but the fact is, no such orifice can be shown to exist.

We can find, then, no other explanation for a phenomenon which undoubtedly exists

than in supposing the fluid passes through the parietes of the nervous plate, or layer, forming the wall of the fifth ventricle. It is easy to illustrate the mechanism of such a passage by *experiment*: place a liquid and a gas in two distinct compartments, separated from each other by a membrane, and you will find that the latter does not prevent the two substances from becoming united; it is this physical phenomenon which I have called *permeability to gases*, and is analogous to the metallic cloth invented by DAVY, which, though it does not prevent the passage of inflammable gas, as was at first supposed, prevents combustion from taking place. Once arrived at the third ventricle, we have little difficulty in explaining how the fluid passes to the other cavities of the brain; this, Gentlemen, is an important point in deciding certain questions in pathology. Thus, if we admit BICHAT'S ideas, how can we explain the passage of blood into the ventricular cavities in certain cases of cerebral hæmorrhage? This is not possible on the supposition that the ventricles are lined by a continuation of the arachnoid, for the primitive seat of the hæmorrhage is in the sub-arachnoid tissue, and not in the cavity of that membrane; on the contrary, if we suppose the ventricles communicate with the tissue, or cavity, beneath the arachnoid, the explanation is quite natural, and the continuity of the course which the blood takes is uninterrupted. In examining the body after death we find blood effused over the surface of the brain, and into the ventricles, without any rupture of the walls of the ventricular cavity: we note the facts, but neglect the consequences deducible from it. When the blood is effused into the bottom of the convolutions, the same phenomena may be observed, and you can now understand why. We speak now of the effects resulting from the existence of communications between the different cavities of the brain, and from these latter to the membranes which envelop the spinal marrow: you have been shown those whose existence is best established. In cases of cerebral hæmorrhage, we examine the various parts of the brain with care; we sometimes find the ventricles filled with blood, and the fluid may even extend down to the lower part of the sacrum; we content ourselves with these facts in pathology, but we neglect to examine them in a physical point of view; we seldom think of asking ourselves how comes it that the blood descends so far as the sacrum, when none of the spinal vessels are ruptured. We cannot arrive at an explanation of this circumstance without knowing that a fluid may pass from the lateral venticles, from these latter to the middle ventricle, from the middle to the fourth ventricle through the aqueduct of SYLVIUS, and, finally, from the fourth ventricle through the opening we have described, to the membranes of the spinal marrow. The extent of space which the effused blood occupies will, of course, depend on the size of the vessel ruptured, on the propelling action of the heart, and a variety of other circumstances, unnecessary to mention here. Hence the seat of the effusion is so often limited; for although the communications exist, it does not follow that the whole of the cavities should be constantly filled with blood. The different points now alluded to, Gentlemen, in a cursory manner, are useful to the practical physician, as well as to the pathologist, and merit some attention.

The presence of the cephalo-rachidian fluid is indispensable, we said, for the healthy performance of cerebral functions: let us examine a few more questions connected with it. This fluid, of which an animal may be deprived for a few hours, but which is secreted again with rapidity, exists in greater quantity at some points than at others; I have named those *confluent*, where it exists in most quantity. The first point is situated in front of the fourth ventricle, and may be called the *cerebellar point* of confluence: it is found near the place where the restiform bodies begin to separate from the cerebellum. The second point where the fluid forms a considerable collection is in front of the tentorium cerebelli, and behind the pineal gland, near the termination of the veins of GALEN. Here, again, is a third point, situated lower down, between the pons-varolii and cerebral peduncles, near the basilar artery. Finally, the fourth point of confluence exists at the bottom of the optic thalami, above the sella turcica, in the neighbourhood of the infundibulum.

Here then are four distinct points in which the cerebro-spinal fluid is collected in unusual quantity; but there are several secondary ones; and this suggests an anatomical fact relative to the fifth pair of nerves: after the trigeminal nerve has passed out from the pons varolii, it forms, as you know, a remarkable ganglion (the *casserian*), from which the three branches of the nerve are derived. Now, the condition of this ganglion, which occupies an excavation a little beyond the upper edge of the petrous portion of the temporal bone, is to be surrounded with a quantity of the cerebro-spinal fluid, contained in this excavation. The orifice giving passage to one branch of the vidian nerve is close at hand, and it seems probable that the fluid may accompany that branch into the interior of the ear. CORTUGO seems to have had an idea of the communication of this fluid with that contained in the semicircular canals—a fact rendered very possible by the existence of an opening into the aqueduct of the vestibule. These facts, Gentlemen, are not without a certain degree of importance, whether we consider them in a physical, or in a pathological point of view, and their

study is much better calculated to lead us to beneficial results than mere assertions, or hypotheses, however ingenious, which can only lead to doubt, and bewilder the judgment, by withdrawing it from the examination of realities.

I have now laid before you some facts of the greatest importance; I have shown you how the cerebro-spinal fluid had free access to all the cavities composing what we might call the ventricular system of the nervous centres; I have also explained, that it is by a real, visible opening, communicating with the end of the fourth ventricle, that this fluid finds access to the interior of the brain; the opening is of an irregular form, sometimes rounded a little, sometimes oblong. It follows from this disposition of parts, that whenever a liquid exists in the subarachnoid tissue of the cavity of the rachis, it may penetrate thence into the ventricles of the brain, in the same way that a fluid may descend from the ventricles of the cerebrum and cerebellum into the cavity of the rachis.

These observations are capable of being applied to the explanation of various phenomena. A considerable number of cerebral maladies depend entirely on modifications which this fluid may have undergone, and hence you can understand how it is impossible to acquire an accurate knowledge of these diseases, their causes, or results, without first having acquired some notions on the normal condition of a fluid so intimately connected with their existence. We shall presently see how this fluid may be imbibed, infiltrate itself into the tissues, and thus disappear, more or less completely, obeying the general laws of imbibition and evaporation, to which all liquids are subject. In the meantime we have established a fundamental fact, the existence of the cerebro-spinal fluid, and its having its seat in the subarachnoid cavity. I shall now pass to the study of this fluid in the living animal.

We are all capable of practising common anatomy; in fact, nothing is more simple, or more easy; you require some care, a little time and patience, with a certain quantity of manual dexterity, and you become a good anatomist; but when we have to study the structure and functions of the living animal, that is to say, study living anatomy, a host of difficulties spring up; some men experience an invincible repugnance to the performance of experiments on living animals, in the same way that some surgeons have been compelled to abandon a profession for which they were ill suited, through an insurmountable repugnance to the performance of any operation on the living body. We have a well-known example of this latter fact in the person of the great HALLER, who, though accustomed to the sight of blood as he must have been from the multiplicity of his anatomical labours, was totally incapable of performing a single operation on the living body.

Other persons, again, systematically reject all physiological experiments, as if physiology were a science which should only occupy itself with the dreams and speculations of bewildered theorists. Let us leave gentlemen to enjoy an error in which they seem to repose with so much pleasure and complacency: for our part, physiology should, on the contrary, occupy itself with phenomena which we study and examine whenever they are visible, but which we merely announce whenever they are not perceptible to our senses. I ask you, what would you think of a professor of chemistry, who, neglecting altogether experiments and visible demonstration, should entertain you with an abstract, barren enumeration of theories and principles? Yet such is the method, or, to speak more correctly (for there is no method in their proceeding), such is the way, in which physiology has been, and is still taught, in almost all the universities of Europe; I shall not even except that of Paris, in other respects so eminently practical. What is the student taught, what does he hear, during a course of physiology, such as we find it at the present day? A collection of theories, one more visionary, if not more absurd, than another; a mass of words, and nothing else, collected from antiquated works, and thrown before him without the support of a single fact; to be believed on the words of his professor, without a shadow of that material evidence which constitutes the force of every exact science. It is truly extraordinary to observe, how even the most elevated minds are led away by the influence of prejudice and preconceived ideas, and refuse to acknowledge truths so evident as that contained in the following proposition: "We can only study phenomenally the experimental method; the laws of physiology are revealed in the manifestation of phenomena; ergo, we should submit the phenomena of physiology to the experimental method."

When still young, I was impelled by a kind of instinct to employ experiments for the discovery of truth, instead of blindly accepting every thing that was taught me in the form of assertion; since then my method has, I hope, rendered the science some service. Thus, for example, our teachers spoke of the contractions of the stomach as a phenomenon beyond all question, and regarded them as being as well established as are the contractions of your hand; but I wanted evidence, and set about examining the changes which take place in the stomach during vomiting, and the manner in which that viscus acts. For this purpose, I laid bare the stomach in a living animal, by removing a portion of the abdominal parietes, and thus endeavoured to ascertain directly,

acid is obtained. Meconate of lime is dissolved in concentrated muriatic acid at the boiling point, taking care, however, that it is not in actual ebullition; it is then filtered, and is repeatedly treated with muriatic acid, until it is completely destructible by heat. The meconic acid will then be obtained in reddish-brown scales, and to be made perfectly pure and white, it must be united with caustic potash, and a meconate of potash be formed, from which it must be repeatedly crystallized until it is perfectly white; it is then decomposed by frequent treatment with muriatic acid, and thus is obtained a perfectly white and pure meconic acid, which, by boiling, is converted into metameconic acid, by sublimation into pyromeconic acid. Meconic acid becomes a most delicate test for salts, soon producing an intense red colour.

In the *Journal de Chimie Médicale* for September, 1836, will be found the observations of M. Pelletier on paramorphine and pseudomorphine; but I have had no opportunity of meeting with any English chemist who has gone over the same experiments, and, therefore, I can say little on the subject, but that he states, that paramorphine comes nearer to narcotine than to any other of the principles, and pseudomorphine to morphia.

In the *Journal de Pharmacie* for 1833, will be found Robiquet's observations on Dr. Gregory's mode of obtaining morphia, and likewise a translation of the original paper, describing the operation of which I have ventured to give a slight sketch, fully aware that the chemist only can explain fully all the steps. M. Robiquet has borne out the preference generally given to the process. Two advantages seem to result from it: the first, that a larger quantity of morphia is obtained, and the employment of alcohol, always an expensive in this country, avoided. M. Robiquet observes, that the first trial he made convinced him that the opium employed by Dr. Gregory, was of a superior quality to that which has been used in France for some years, and not only that ours contain more morphia, but that the proportion of narcotine is considerably less. He expresses his want of information as to the causes that produce this, whether it be dependent on the species of the poppy, the diversity of climate in which its cultivation is pursued, or upon the mode by which the opium is obtained, or upon some sophistication by adding the opium obtained from the indigenous plant. In order to satisfy himself, he wrote to Dr. Gregory for a specimen of the opium on which he had operated, and which was immediately sent to him, with an explanation, that, as the muriate of morphia was only employed by the medical men in Edinburgh, he did not attempt to obtain the morphia isolated, but in combination with the muriatic acid; this did not explain the difficulty that Mr. Robiquet had found in obtaining a larger quantity of the morphia. He concludes his paper by stating, that he thinks Dr. Gregory's process merits preference from its economy, its simplicity, and its facility of execution; but that he is inclined to believe that the larger quantity of morphia obtained is in some measure owing to the superiority of the opium which is found in this country; and he calls upon the Society of Pharmacy, where his report was read, to return its thanks for the labours of Dr. Gregory, which merit the approbation of chemists.

LECTURES
ON THE
PHYSIOLOGY OF THE NERVOUS SYSTEM,
DELIVERED IN 1836, IN THE COLLEGE OF FRANCE.

By M. MAGENDIE.

Lecture VI.

Communication of the Ventricles of the Brain with the Subarachnoid Cavity, and not with the Cavity of the Serous Sac.—How the Cerebro-spinal Fluid arrives in the Lateral Ventricles.—Passage of Blood into the Ventricles in Cerebral Hæmorrhage.—Points where the Cerebro-spinal Fluid exists in largest quantity. Imperfect Mode of Teaching Physiology. The Lectures Early Studies.—The Process of Vomiting.—Examination of the Cerebro-spinal Fluid in the Living Animal.

Gentlemen:—You are all, without doubt, acquainted with the anatomical fact, that the veins of the choroid plexus terminate in the veins of Galen, which latter pass on to the torcular herophili. It was at this point that Bichat described a small opening, through which the external arachnoid passed into the ventricles. It is certain that we very frequently find, in this particular place, a kind of fold, formed by the arachnoid, and that Galen's veins, placed on the median line, seem supported by a little falx of the same membrane, or species of cul-de-sac, which in many other cases is absent; but it is impossible to show that this is an opening, as Bichat imagined, or a canal of communication between the external arachnoid and the lining membrane of the ventricular cavities; and the experiment he quotes of exploration with a blunt-pointed probe turns against himself, for, on the one hand, it is not true that on opening the canal we arrive at the cavity of the ventricles; and, on the other, it seems extremely probable, if not certain, that it is the probe which makes this pretended opening, and nothing else

With the simplicity of a man firmly convinced of what he says, BICHAT assures us that the opening is found by executing a slight rotatory motion with the probe, while he never imagined, or perceived, that it was the very movement he recommends which practices the opening. According to the theory of BICHAT, the canal opened in a point of the ventricular cavities that was quite indeterminate. Here his good sense pointed out a fact; however, he thought it communicated with the middle ventricle somewhere in the neighbourhood of the pineal gland. If this anatomical fact really existed, it should harmonize with pathological experience; hence BICHAT endeavoured to explain why the fluid contained in the ventricles does not communicate with the great cavity of the arachnoid, even in cases of most extensive effusion of serum into the ventricular cavity; and with this object he offered a mechanical explanation of a very faulty kind, saying, "that as the fluid in the ventricles augmented, it shut up the orifice of the canal by the pressure it exercised on its parietes." This, however, is not the only anatomical error which we find in the general anatomy of BICHAT, but they are lost, or thrown into the shade, by the multitude of beautiful truths by which they are surrounded.

We uphold, then, that the ventricles of the brain communicate with the sub-arachnoid cavity, and not with the cavity of the serous sac; our assertion is a rigorous conclusion, if we have demonstrated that they do not communicate with the latter. When you examine the inferior portion of the cerebellum and the medulla oblongata, you find that the fourth ventricle is principally contained between these two parts, which also embrace its opening. About the middle of the level of the fourth ventricle, we constantly find an orifice through which we might introduce the tip of the small finger, or the extremity of a pen; it is sometimes divided by the trunks of vessels passing from the medulla oblongata to the cerebellum, or it may be masked by folds of the membranes. However, it always exists, and forms an evident communication between the subarachnoid cavity of the spinal marrow and the fourth ventricle of the brain, and whenever it is absent we should attribute its disappearance to some pathological condition of the membranes; there are, in fact, some phenomena which seem to demonstrate that an abnormal membrane sometimes forms what I call the opening of the ventricles; it is here that the fluid passes from the spinal marrow to the cerebellum, from the fourth ventricle to the aqueduct of SYLVIUS, and thence to the other ventricles of the brain. In this manner it follows the cellular tissue immediately in contact with all these parts, and anteriorly descends along the infundibulum, which, as you know, passes down from the floor of the third ventricle to the pituitary gland.

In the present state of our knowledge, we are completely ignorant of the uses which these several parts serve. Thus, for example, the function of the pineal gland is altogether enveloped in mystery; that of the pituitary body is also unknown, for we cannot admit the hypothesis to which its existence has given rise. We are also unable to say what office the infundibulum may fulfill. Perhaps one day or another, by studying the properties and effects of the cerebro-spinal fluid, we may arrive at some useful discoveries on these obscure points of physiology; if inhibition be necessary for the manner of existence of our several parts, a well-directed series of observations on this point may not be without fruit.

Now, consider how the fluid may arrive in the lateral ventricles. This is a question which has not as yet been solved in a very clear manner, and I have met anatomists who found considerable difficulty in answering it, because their attention had not been fixed upon this point. The method of communication, however, is easily established through the medium of the third, or middle, ventricle, into which the aqueduct of SYLVIUS opens. The septum lucidum, also, affords us a curious circumstance relative to the presence, or absence, of the cephalo-rachidian fluid. In some cases we find this septum, which, in a normal state you know to be excessively thin, distended to a considerable degree; in other cases, where the lateral ventricles contain a great quantity of fluid, the septum lucidum is more or less lacerated, or may even disappear altogether; and hence the conditions, as well as the proportions, of this part of the brain are intimately connected with the cerebro-spinal fluid.

It is not always easy to point out the openings by which the cephalo-rachidian fluid passes from the vertebral canal and cerebellum to the various cavities of the brain, which anatomists call ventricles. No matter how carefully we examine the septum lucidum and its surrounding parietes, we are unable to find the slightest trace of an opening leading into its cavity. Whence, then, is the fluid derived, which, in some cases, we find in such abundance between the two layers of medullary substance constituting the septum lucidum? This is a question to which we must confess ourselves unable to reply. We know that, externally, its walls are bathed by the fluid of the lateral ventricles; but we cannot comprehend how or where the external fluid finds an ingress. Some anatomists, it is true, describe an orifice of communication; but the fact is, no such orifice can be shewn to exist.

We can find, then, no other explanation for a phenomenon which undoubtedly exists

than in supposing the fluid passes through the parietes of the nervous plate, or layer, forming the wall of the fifth ventricle. It is easy to illustrate the mechanism of such a passage by experiment: place a liquid and a gas in two distinct compartments, separated from each other by a membrane, and you will find that the latter does not prevent the two substances from becoming united; it is this physical phenomenon which I have called *permeability to gases*, and is analogous to the metallic cloth invented by DAVY, which, though it does not prevent the passage of inflammable gas, as was at first supposed, prevents combustion from taking place. Once arrived at the third ventricle, we have little difficulty in explaining how the fluid passes to the other cavities of the brain; this, Gentlemen, is an important point in deciding certain questions in pathology. Thus, if we admit BICHAT'S ideas, how can we explain the passage of blood into the ventricular cavities in certain cases of cerebral hæmorrhage? This is not possible on the supposition that the ventricles are lined by a continuation of the arachnoid, for the primitive seat of the hæmorrhage is in the sub-arachnoid tissue, and not in the cavity of that membrane; on the contrary, if we suppose the ventricles communicate with the tissue, or cavity, beneath the arachnoid, the explanation is quite natural, and the continuity of the course which the blood takes is uninterrupted. In examining the body after death we find blood effused over the surface of the brain, and into the ventricles, without any rupture of the walls of the ventricular cavity: we note the facts, but neglect the consequences deducible from it. When the blood is effused into the bottom of the convolutions, the same phenomena may be observed, and you can now understand why. We speak now of the effects resulting from the existence of communications between the different cavities of the brain, and from these latter to the membranes which envelop the spinal marrow: you have been shown those whose existence is best established. In cases of cerebral hæmorrhage, we examine the various parts of the brain with care; we sometimes find the ventricles filled with blood, and the fluid may even extend down to the lower part of the sacrum; we content ourselves with these facts in pathology, but we neglect to examine them in a physical point of view; we seldom think of asking ourselves how comes it that the blood descends so far as the sacrum, when none of the spinal vessels are ruptured. We cannot arrive at an explanation of this circumstance without knowing that a fluid may pass from the lateral ventricles, from these latter to the middle ventricle, from the middle to the fourth ventricle through the aqueduct of SYLVIUS, and, finally, from the fourth ventricle through the opening we have described, to the membranes of the spinal marrow. The extent of space which the effused blood occupies will, of course, depend on the size of the vessel ruptured, on the propelling action of the heart, and a variety of other circumstances, unnecessary to mention here. Hence the seat of the effusion is so often limited; for although the communications exist, it does not follow that the whole of the cavities should be constantly filled with blood. The different points now alluded to, Gentlemen, in a cursory manner, are useful to the practical physician, as well as to the pathologist, and merit some attention.

The presence of the cephalo-rachidian fluid is indispensable, we said, for the healthy performance of cerebral functions: let us examine a few more questions connected with it. This fluid, of which an animal may be deprived for a few hours, but which is secreted again with rapidity, exists in greater quantity at some points than at others; I have named those *confluent*, where it exists in most quantity. The first point is situated in front of the fourth ventricle, and may be called the *cerebellar point* of confluence: it is found near the place where the restiform bodies begin to separate from the cerebellum. The second point where the fluid forms a considerable collection is in front of the tentorium cerebelli, and behind the pineal gland, near the termination of the veins of GALEN. Here, again, is a third point, situated lower down, between the pons-varolii and cerebral peduncles, near the basilar artery. Finally, the fourth point of confluence exists at the bottom of the optic thalami, above the sella turcica, in the neighbourhood of the infundibulum.

Here then are four distinct points in which the cerebro-spinal fluid is collected in unusual quantity; but there are several secondary ones; and this suggests an anatomical fact relative to the fifth pair of nerves: after the trigeminal nerve has passed out from the pons varolii, it forms, as you know, a remarkable ganglion (the *casserian*), from which the three branches of the nerve are derived. Now, the condition of this ganglion, which occupies an excavation a little beyond the upper edge of the petrous portion of the temporal bone, is to be surrounded with a quantity of the cerebro-spinal fluid, contained in this excavation. The orifice giving passage to one branch of the vidian nerve is close at hand, and it seems probable that the fluid may accompany that branch into the interior of the ear. COTUGNO seems to have had an idea of the communication of this fluid with that contained in the semicircular canals—a fact rendered very possible by the existence of an opening into the aqueduct of the vestibule. These facts, Gentlemen, are not without a certain degree of importance, whether we consider them in a physical, or in a pathological point of view, and their

study is much better calculated to lead us to beneficial results than mere assertions, or hypotheses, however ingenious, which can only lead to doubt, and bewilder the judgment, by withdrawing it from the examination of realities.

I have now laid before you some facts of the greatest importance; I have shown you how the cerebro-spinal fluid had free access to all the cavities composing what we might call the ventricular system of the nervous centres; I have also explained, that it is by a real, visible opening, communicating with the end of the fourth ventricle, that this fluid finds access to the interior of the brain; the opening is of an irregular form, sometimes rounded a little, sometimes oblong. It follows from this disposition of parts, that whenever a liquid exists in the subarachnoid tissue of the cavity of the rachis, it may penetrate thence into the ventricles of the brain, in the same way that a fluid may descend from the ventricles of the cerebrum and cerebellum into the cavity of the rachis.

These observations are capable of being applied to the explanation of various phenomena. A considerable number of cerebral maladies depend entirely on modifications which this fluid may have undergone, and hence you can understand how it is impossible to acquire an accurate knowledge of these diseases, their causes, or results, without first having acquired some notions on the normal condition of a fluid so intimately connected with their existence. We shall presently see how this fluid may be imbibed, infiltrate itself into the tissues, and thus disappear, more or less completely, obeying the general laws of imbibition and evaporation, to which all liquids are subject. In the meantime we have established a fundamental fact, the existence of the cerebro-spinal fluid, and its having its seat in the subarachnoid cavity. I shall now pass to the study of this fluid in the living animal.

We are all capable of practising common anatomy; in fact, nothing is more simple, or more easy; you require some care, a little time and patience, with a certain quantity of manual dexterity, and you become a good anatomist; but when we have to study the structure and functions of the living animal, that is to say, study living anatomy, a host of difficulties spring up; some men experience an invincible repugnance to the performance of experiments on living animals, in the same way that some surgeons have been compelled to abandon a profession for which they were ill suited, through an insurmountable repugnance to the performance of any operation on the living body. We have a well-known example of this latter fact in the person of the great HALLER, who, though accustomed to the sight of blood as he must have been from the multiplicity of his anatomical labours, was totally incapable of performing a single operation on the living body.

Other persons, again, systematically reject all physiological experiments, as if physiology were a science which should only occupy itself with the dreams and speculations of bewildered theorists. Let us leave gentlemen to enjoy an error in which they seem to repose with so much pleasure and complacency: for our part, physiology should, on the contrary, occupy itself with phenomena which we study and examine whenever they are visible, but which we merely announce whenever they are not perceptible to our senses. I ask you, what would you think of a professor of chemistry, who, neglecting altogether experiments and visible demonstration, should entertain you with an abstract, barren enumeration of theories and principles? Yet such is the method, or, to speak more correctly (for there is no method in their proceeding), such is the way, in which physiology has been, and is still taught, in almost all the universities of Europe; I shall not even except that of Paris, in other respects so eminently practical. What is the student taught, what does he hear, during a course of physiology, such as we find it at the present day? A collection of theories, one more visionary, if not more absurd, than another; a mass of words, and nothing else, collected from antiquated works, and thrown before him without the support of a single fact; to be believed on the words of his professor, without a shadow of that material evidence which constitutes the force of every exact science. It is truly extraordinary to observe, how even the most elevated minds are led away by the influence of prejudice and preconceived ideas, and refuse to acknowledge truths so evident as that contained in the following proposition: "We can only study phenomenally the experimental method; the laws of physiology are revealed in the manifestation of phenomena; ergo, we should submit the phenomena of physiology to the experimental method."

When still young, I was impelled by a kind of instinct to employ experiments for the discovery of truth, instead of blindly accepting every thing that was taught me in the form of assertion; since then my method has, I hope, rendered the science some service. Thus, for example, our teachers spoke of the contractions of the stomach as a phenomenon beyond all question, and regarded them as being as well established as are the contractions of your hand; but I wanted evidence, and set about examining the changes which take place in the stomach during vomiting, and the manner in which that viscus acts. For this purpose, I laid bare the stomach in a living animal, by removing a portion of the abdominal parietes, and thus endeavoured to ascertain directly,

whether it really contracted, as physiologists taught, or not. The error of believing the affirmative proposition was soon revealed to me. Instead of contracting under stimuli, and rejecting its contents, the stomach, on the contrary, dilated, and hence the act of vomiting could not be attributed to any immediate contraction of the organ. The phenomenon just mentioned was repeated whenever the stomach of a living animal was laid bare; and, in the impossibility of refuting it, physiologists were henceforward compelled to abandon the hypothesis of active contraction, and adopt another explanation, founded on experiment, viz., that vomiting depends on the contents of the stomach being rejected by contraction of the abdominal muscles, and not by contraction of the stomach, as was before universally believed. You see that, without the aid of experiment, I should never have been able to rectify this point in physiology, and that the error would, in all probability, still continue to flourish, if my ideas had been confined to the doctrines inculcated in books, or delivered from the professorial chair. I might enumerate hundreds of errors which have been admitted equally into our best standard treatises, because their authors have never submitted to the test of experiment even a five-hundredth part of the facts which they cite; but I hasten to the principal point of the question which now occupies us, and shall confine myself, for the present, to the task of submitting to you a few of the objections which some people make to my experiments, and certain judgments that have been pronounced with little cognizance of the facts.

Thus, in some of my antecedent works, when speaking of sensibility and motility, I advanced the doctrine, that sensibility is destroyed by cutting across the posterior nerves; while, on the contrary, motility disappears when we divide the anterior roots. These two facts had been well demonstrated by positive and decisive experiments; yet M. Cruveilhier presumes, in a recent work, to deny these experiments, and upholds that the posterior roots have no more power over the sensibility of parts, than the anterior have over their motions. Probably, however, this should not so much astonish us. The phenomena now mentioned were, perhaps, never witnessed by M. Cruveilhier, and, consequently, he is not forced to know or believe them. "But," you will object, "M. Cruveilhier may have performed these experiments as well as yourself, without obtaining the same results." Certainly, if his experiments were performed in an imperfect manner, or without the necessary precautions; if, for example, he divided only a portion of the roots, without having completely cut through them. We shall see, at a future period, how intimately these experiments are connected with various points of pathology, and the manner in which they explain the phenomena which present themselves during the course of many diseases of the cerebro-spinal nervous system; spina bifida, for example, hernia of the brain, paralysis, &c. In the mean time I ought to return to our examination of the cerebro-spinal fluid, which we propose to take up in the living animal; and, in order to give our experiments more value, I shall select such animals as approach nearest the human species. Our choice, however, is unlimited; for the presence of the fluid has been demonstrated in all classes of the brute creation. In applying our judgment to the appreciation of what is observed in animals, we should not forget to take into account the various conditions peculiar to certain species and classes. Thus, in fishes and reptiles the sub-arachnoid matter is demi-liquid, and appears to contain crystals. When we examine with the microscope the ganglia placed along the posterior part of the spinal marrow, in reptiles, we discover these crystals in a state of complete formation. During life they doubtlessly existed in the state of a liquid. However this may be, these are evident reasons for selecting, as subjects of our experiments, such animals of the class mammalia as approach nearest to man. The dog, for example, the cat, rabbits, and the tribe of rodentia. This subject must now occupy us.

Gentlemen: when you open any point of the vertebral column in these animals, and bring the dura mater into view, you perceive this latter membrane distended, as it were, by a layer of fluid more or less thick. There are, however, some points more favourable for its examination than others. In the cavity of the cranium, for example, the layer of fluid is thin; it is more abundant in that of the vertebral column, but in this latter cavity we find a certain difficulty in experimenting, on account of the muscular tissue, the bony envelop, and the blood-vessels, which exist in great quantity round the vertebræ. The most favourable point of all is the interval separating the occipital bone from the atlas and axis, but even here we run some risk of opening one or more vessels when we divide the ligaments by which these parts are bound together. Having made a choice of the point to be opened, and laid bare the fibrous membrane, we find, as I said before, the dura mater pretty strongly distended by the cerebro-spinal fluid; if you now apply your finger, you feel it elevated and depressed by movements corresponding with those of the respiration, for the fluid follows the engorgement and depletion of the vertebral veins, which we have already described as taking place during the respiratory act. If you make a small opening into the fibrous membrane a portion of the fluid escapes, and the arachnoid forms a species of hernia through the orifice practised.

All these facts were unknown before the experiments which I performed to determine the existence and seat of the cerebro-spinal fluid. Cotugno, however, whose name has been rendered celebrated by the discovery of his fluid in the internal ear, had also made some experiments relative to this phenomenon on the dead body, but his observations are completely lost in his work on "Sciatic Gout," in which he published the result of his anatomical researches on the membrane of the brain. In the work just mentioned, we find the pressure of the fluid in the dead body established; an accurate description of the manner in which the envelops of the nervous centres are disposed; and, finally, the incontestible fact of the fluid being most abundant in aged persons; with several other highly interesting observations. Cotugno asks, whether the fluid really exists during life, or is a cadaveric phenomenon? but he arrived at no determinate conclusion upon this point. I was totally ignorant, Gentlemen, of all I now tell you when first I undertook my experiments on the cerebro-spinal fluid; but even supposing I had cognizance of the researches made so long ago by the Italian anatomist, it would remain equally true that I was the first to determine its existence by direct experiment. The manner in which my attention was first directed towards this fluid was very simple. While making a number of experiments on the anterior and posterior roots of the spinal marrow, I perceived that each time I made an incision into the dura mater, a certain quantity of fluid escaped. Thus, you see, without going any further, how this fact was discovered by studying anatomy on the living animal; other facts were joined to that just now mentioned; they may be arranged in the following succession, or order, for the sake of clearness, and to render our demonstration more evident:—

The first phenomenon is, that on laying bare the dura mater in the living animal, we perceive a tumefaction and subsidence of that membrane alternating with one another.

The second phenomenon is the tension which the cerebro-spinal fluid causes in the sac of the dura mater.

The third fact is the issue of fluid in a kind of jet, when the membranous sac is opened.

The fourth fact consists in the hernial protrusion of the arachnoid through the opening in the dura mater.

GUN-SHOT WOUND OF THE THIGH,

FOLLOWED BY

FATAL TETANUS.

Sir:—I shall be much obliged by your inserting the following case in an early number of your valuable and widely-circulated journal. I have the honour to be, Sir, your obedient servant,

Richard Birtwhistle, M.R.C.S.L.,
and Surgeon R.N.

Skipton-in-Craven, Yorkshire,
Oct. 24, 1836.

H.M.S. *Caledonia*, Harbour of Syracuse, Sicily, May 9th, 1836.

Case.—Mr. C. P. J——, midshipman, aged 18, was brought on board at 1, P.M., with an extensive gun-shot wound in the left thigh. He stated that he had been with a shooting party up the river Anapus, and that a native boy who accompanied them as a guide, had taken up, without permission, the gun of another officer, to examine it, when it accidently went off, and the whole charge, consisting of No. 9 shot, was lodged in the limb of Mr. J., he being at the time not more than three yards from the mouth of the piece.

The wound was directly in front of the thigh, within three inches from the groin, circular in form, and about two inches and a half in diameter. The integuments were entirely destroyed, and the rectus muscle was bulging through them, and appeared to be dreadfully lacerated and contused. The shot seemed to have passed through the above-named muscle down to the crureus, and thence to have diverged through the vastus internus and externus, but principally in a direction upwards and backwards, towards the great trochanter, as in that situation there was considerable swelling, arising from extravasated blood. A careful examination was made to ascertain if the bone had received any injury, but none could be discovered, and as there was little or no hæmorrhage, it was evident that no large vessel was wounded. No doubt could, however, be entertained that the case was of the most grievous and dangerous description, and Dr. Hillyar (an old and distinguished surgeon, to whom Sir Gilbert Blane's medal was awarded last year,) very wisely determined to call a consultation of all the surgeons in the squadron, to decide on the propriety of endeavouring to save the limb, at which it was unanimously agreed that the attempt should be made. The wound was, therefore, simply dressed, and the surrounding parts were kept constantly wet with an evaporating lotion, and as the patient was suffering much from the shock, a full opiate was administered. By these means the day was passed tranquilly, and, by the exhibition of another anodyne

draught at bed-time, he had an easy night, and slept for four or five hours.

On the morning of the 10th the swelling had somewhat increased, and he complained of a dull pain in the whole limb. There was a slight emphysema above and below the knee, and the patient had much headach, and a degree of wandering in his ideas, which might probably be attributed in part to the opium he had taken. The pulse was accelerated, the tongue white, and the skin very hot. Sixty leeches were now applied round the wound, and he was ordered an ounce of castor oil. The leech-bites bled freely, and occasioned an approach of syncope, after which he was much easier and more composed. At the evening visit the tension was rather greater, and as the oil had not operated, he took a full dose of calomel, followed by a cathartic draught.

Up to 9, A.M., (May 11), he was exceedingly restless, and constantly talking incoherently, except when particularly questioned or addressed, when he replied with consciousness, and correctly. Early in the morning he had some retching, but he had then a copious evacuation from his bowels, and almost immediately afterwards became calm, and fell into a sleep, which continued during two hours. A second consultation was held on that day, at which the symptoms and appearances were considered to be favourable.

From that date up to 11, P.M., on the 13th, we had no reason to alter this opinion of his state, for although the symptoms assumed at times an aspect of severity, they were easily moderated, or subdued, by the prompt employment of antiphlogistic remedies, and much relief was likewise afforded by a free incision made in the back part of the limb, from which about two drachms of bloody and sanious fluid oozed. At that time, however, a sudden and alarming change took place, commencing with great irritability of temper, and extreme restlessness, which continued until

8, A.M., on the 14th, when he complained of some pain and difficulty in moving his jaw and tongue, and of a sense of constriction of the throat and upper part of the chest. His countenance, which from the first had been cheerful, and had preserved its naturally mild expression, was now anxious, and indicative of much suffering, and there were frequent slight convulsive twitchings of the muscles of the face; the act of deglutition occasioned a spasmodic action of the muscles of the larynx and pharynx, and produced great distress. At 6, A.M., the rigidity was more marked, and the teeth could not be separated above half an inch.

Under these circumstances, the surgeons of the different ships in the squadron were again assembled to consult on the case, when it was determined that, after procuring, if possible, evacuations from the bowels, (which had been confined for 36 hours), the system should be placed as rapidly as possible under the influence of mercury and of opium, by giving him full doses of the submuriate, and of the tincture of opium, every two hours, and by employing inunction of the strong mercurial ointment. Two large doses of calomel had been taken in the course of the night, as well as a brisk purgative draught; but these not having operated, ten grains more were given to him. At 10 o'clock, two drops of croton oil were placed on his tongue, and repeated at 12; shortly after which he passed a scanty stool, involuntarily, into the bed. At half-past 12 he began with the calomel and opium, and the mercurial frictions; and, at 3 o'clock, the same means were again had recourse to. At 4 o'clock opisthotonos took place, and the immobility of the jaw had much increased. He could not now be persuaded to take any medicine, as it occasioned such violent action of the muscles concerned in deglutition. The jaw remained nearly fixed, and the head firmly drawn backwards, untill 10 o'clock, when he had a convulsive fit, affecting particularly the muscles of the face, neck, and trunk, and, more or less, those of the whole body, subsequently to which he was much exhausted. This attack was renewed in about ten minutes, and recurred at short intervals, gradually increasing in strength and duration. At about 11 o'clock he had a copious involuntary stool, and voided his urine. The pulse now was 140, very weak, and slightly intermittent, and he was evidently sinking. Nevertheless, he was still quite sensible, and begged to be removed into a chair, and to be put into a warm bath. At five minutes before midnight he had a very severe fit, and, almost instantly afterwards, expired.

Autopsy of the Limb.—On examination of the limb, ten hours after death, the shots were found to have passed in an oblique direction upwards and backwards, but principally in the latter course, close to the outer side of the femur, and the charge, the wadding, and parts of the trowsers, were discovered at the posterior part of the thigh, within an inch of the surface, and very near the incision made therein. Their track was marked by extensive sloughing, and by the formation of matter in the surrounding muscles. The external half of the bone was denuded of its periosteum for the extent of three inches, and there was diffused cellular inflammation, extending from the outside of the calf as high as the hip, but which did not at all affect the inner portion of the limb. The covering of the anterior crural nerve, and of its superficial and deep-seated branches, was in a highly inflamed state, and this most probably led to the tetanus which destroyed him.

THE LANCET.

London, Saturday, November 19, 1836.

WHENEVER public offices are occupied by incompetent persons, whatever may be the character of the institutions in which such persons are placed, it is obvious that they must, sooner or later, fall into a state of disrepute. The importance of the office makes no exception to this rule. From the parish constable up to the monarch the actions of the individual are often subversive of the respect which is due to the public functionary. The progress of knowledge and liberty in a nation is, therefore, often best indicated by the judgment and integrity which are displayed in the appointments to important public offices,—in the selection of the ministers of the executive government, the dignitaries of the church, the judges of the land, and other important national functionaries. In those periods of our history wherein nearly all appointments were made under the corrupt influence of various mercenary and intriguing advisers who moved around the throne, intelligence was not generally diffused among the people, and, consequently, it may be said that, although there was a nation, there existed no public opinion. At the present hour the national affairs are conducted under a far different aspect. The grounds on which the various appointments are made to our public offices are scanned with scrupulous nicety and rigid exactness, and although the people do not yet exercise over those appointments, by means of the legislature, that power which they will some day take upon themselves to wield, and although many men are allowed to occupy posts of trust and high honour, the duties of which they have not the ability to discharge with competency, still it is rarely inferred that such persons have obtained their elevated positions by means of pecuniary bribes. Under a system of nepotism, however, as much mischief may result to the community as from any other improper cause.

But is it not strange, in a country where public opinion has sprung up so rapidly, and is exercised so absolutely and correctly on great public questions in general, that that opinion should be left to operate so inefficiently in many instances in which the people themselves are called upon to *act* as well as to deliberate? If there were appointed to the office of Lord Chancellor an individual who was confessedly and notoriously incompetent to discharge its duties, the nation would be in a ferment, and the press would devote its capacious columns to the discussion of such a scandalous abuse of the Royal Prerogative, until the country, from its remotest extremities, re-echoed the complaint. Presently, however, the people have to make some elections of their own. *They* have to choose presiding officers. *They* have to choose judges whose duties involve questions which are intimately connected with the preservation of their own freedom. And *then* what happens? No sooner is public opinion traced down to its elements, by the operation of individual action, than cause and effect appear to be inseparably confounded, and that mightiest of national influences, *public* opinion, seems to exhibit no evidences of *individual* reflection as the source of its origin. One illustration of the fact to which we advert is sufficient for our purpose. We refer to the election of coroners by the freeholders of this kingdom,—a subject which is again brought under our notice by some remarks which we published last week in the lecture of Professor THOMSON. Being fully impressed with the importance of the principles and practice which those remarks involve, we embrace the opportunity of submitting the views of Dr. THOMSON to the test of a brief practical examination.

After having explained the duties which a coroner has to discharge, the Professor remarks:—

"I think that, from these facts, I may also "venture to say, that it would neither be

"advantageous to the public nor to the pro-
"fession, were the office to be filled by
"medical men. If a practitioner, who is
"also a coroner, have much employment,
"especially if he practice midwifery, it is
"evident that either the public service must
"suffer, or his patients must be neglected.
"In truth, so long as the services of the
"profession are necessarily at the command
"of the public, the offices of a medical prac-
"titioner and of coroner are, in my opinion,
"completely incompatible."

Between the first and the last of the three sentences which compose this paragraph, there is not a *real*, but only an *apparent* resemblance of meaning. In the first sentence Dr. Thomson declares that "it would "be advantageous neither to the public nor "the profession, if the office of coroner were "filled by *medical men*." In the third sentence he observes, "In truth, so long as the "services of the profession are at the com-"mand of the public, the offices of a *medical* "*practitioner* and a coroner are incompati-"ble." The application, therefore, of the opinion expressed in the first sentence, that the office of coroner ought not to be filled by *medical men*, becomes restricted in the last sentence to the occupancy of that office by *medical practitioners*. Undoubtedly, persons who have been regularly educated in the science of medicine, and who are ultimately received as members of our colleges, must be regarded, in the strictest sense of the expression, as "medical men." Yet Dr. Thomson, according to the introductory sentence of the paragraph which we have quoted, would exclude gentlemen possessing the acquirements which a medical education would ensure to them, from the office of coroner. Still, from the remark which concludes his notice of the subject, we are led to infer that his objections extend only to medical men who are engaged in the active discharge of their professional avocations. All the facts which are made the subject of reference in the preceeding portion of the lecture, tend to prove, beyond dispute, that a gentleman who has *not* received a medical education, never can adequately discharge the duties of the coroner's office. The second of the three sentences which we have quoted is evidently impressed with a character of an opposite tendency. It is, unfortunate, undoubtedly, when the duties of a private station are incompatible with those which a public functionary is required to discharge. If, however, a surgeon in general practice is to be excluded from the office of coroner on account of an occasional incompatibility in the labours which he may be required to execute, all other persons who are engaged in professions and trades must be peremptorily disqualified, through the operation of similar causes. Whenever the office of coroner is not occupied by a gentleman belonging to the medical profession, the person selected is an attorney. Probably, throughout England there are not at this moment ten exceptions to this rule. But does the lawyer devote the whole of his time to the duties of his situation? In many places the coroner does not hold five inquests in a year. In some places not one. It cannot be expected, therefore, that a man who is in the prime of life, urged on by the vigour of youth, and stimulated by a just spirit of ambition, should so far mar his own prospects in the world as to bind himself down to perform only the few duties which are connected with the office of coroner. If we suppose, then, that the attorney is admitted as a qualified person,—and against gentlemen of the legal profession Dr. Thomson has offered no objections,—do not his avocations, with reference to incompatibility with those of the coroner's office, render him quite as ineligible as, if not *more* ineligible than, the medical practitioner? True it is, that when a surgeon is acting as coroner he may be called to assist at an accouchement; but the same demand may be made upon him when he is acting under the order of a coroner to institute a post-mortem examination. Or he may be subjected to a similar call when he is attending as a witness under a summons issued by the coroner. Further; are not attorneys often the stewards, or land-agents, of the proprietors of extensive tracts of country, and in such capacity are they not frequently absent from their offices during many days together? Again; do they not attend, professionally, quarter-sessions, petty-sessions, and county-assizes? Are they not clerks of the peace, clerks to a hundred sorts of commissioners, vestry clerks, and clerks to boards of guardians? So that, on the ground of incompatibility of *occupations*, the scale turns instantly and decidedly in favour of the medical practitioner. Certainly it would be preferable if no circumstance existed which

was at all calculated to interfere with the prompt and undeviating performance of the duties of *every* public office; and where a man is sufficiently well paid for devoting the whole of his time and energies to the calls which arise out of one position, then, and not till then, can this desirable object be accomplished. It is only in a very few situations that the emoluments of the office of coroner are such as would justify a man of ordinary pretensions in shutting himself out from all chance of obtaining profit from other pursuits. But if the income which is derived by the coroner, from inquests, amounted to five thousand pounds a year, we very much question, if that officer were a medical practitioner *not* engaged in the practice of midwifery, whether the legislature would not detract both from his utility and his capability, by requiring that he should wholly abandon medicine as a profession. In local situations, where practitioners are often brought into a litigious state of rivalry, through the tittle-tattle and gossip of tea-table slanderers, and other mischief-makers, it certainly is a question which admits of some discussion, whether one of the practitioners who is so circumstanced could with propriety be selected to fill the office of coroner. We say, that this is a question on which *some* discussion might reasonably be founded, and the semblance of argument might be urged against such a choice; but when both sides of the question are fairly investigated, when the advantages and the disadvantages are honestly contrasted, the balance is so strong in favour of choosing a medical practitioner, whatever may be the rancour or the virulence of the opposition which he is offering to the other practitioners in the neighbourhood, or however strongly the like force may be displayed against himself, no doubt can exist that his claims to the confidence of the electors are pre-eminent over those of any mere *lawyer*, or over any pretensions that can be urged by an individual who is unacquainted with the principles and practice of medicine. True enough is it that the medical witness might be subjected to a sharp and searching examination by the coroner; but equally true is it, that it is for the advantage of that witness, and infinitely greater is the advantage to the public, that he should be enabled to encounter such a trial without apprehension as to the consequences. If he possess a knowledge of his profession, if he be competent as a medical witness, he would not shrink from such a contest; and if he be not competent as a witness, what could be more obnoxious to the ends of public justice, than that the verdict of a jury should be founded upon the testimony of such a person? Charitable, in a limited sense, may be the desire to shield an incompetent witness from exposure, but there is no charity in making the concealment of his ignorance a ground whereon to found a charge of murder. It can scarcely be contended that a *professional* reputation is of more value than a good moral character. It cannot, therefore, be justly required that a medical witness should be screened from undergoing a rigid examination, simply on the plea that his ignorance might be exhibited, because that very exposure might have the effect of instantly relieving an innocent person from a suspicion, or even from an accusation, of a character involving consequences which the mind shrinks from contemplating.

We hope, therefore, that we are correct in considering that Dr. THOMSON would not exclude medical men from the office of coroner on the ground of ineligibility, or even members of the profession who are actually engaged in practice; and we hope, further, that on reinvestigating the subject,—that on entering into an impartial comparison of the claims of medical practitioners with those of practitioners in the law, or those of any persons engaged in other pursuits, he will come to a conclusion which will be unequivocally favourable to the superior qualifications of the members of his own profession.

As to the mere *law*, the *technical* law, with which it is necessary that the mind of the coroner should be fortified, the whole of it could be acquired by a person of ordinary capacity and memory during one day's study of the excellent little volume, written by Mr. JERVIS, on "The Office and Duties of Coroner." Is not Professor THOMSON himself a physician? Is not the subject of Medical Jurisprudence, speaking with reference to *time*, comparatively new to him? Is he not himself an expounder of the law under which a coroner is to execute his functions; aye, and, as appears by his lectures, an able expounder of that law? And yet is he not a physician?

Clearly, then, we should be subjecting the remarks of Dr. THOMSON to a very unjust and mischievous interpretation, if we were to believe that he would make it a matter of preference to exclude all medical men,—that is, all legally-qualified members of our profession, both in and out of practice,—from the office of coroner. "Unjust," because it would impute to Dr. THOMSON that he desired to shut out from the office of coroner the only men by whom it can be competently occupied. Dr. THOMSON has himself adverted, with much excellence of argument, to the discretion and judgment which medical witnesses are called upon to display in the Coroner's Court. Of what use is all this profundity of knowledge on the part of the witness, if even the judge who presides in the court, is wholly ignorant of the science to which it relates? In nineteen cases out of twenty—aye, in ninety-nine cases out of a hundred—the testimony which is given by the medical witness, is *medical* testimony. The science of medicine is not without principles; the practice of medicine is not destitute of facts. If the medical witness be wrong in his principles, be incorrect in his statements of fact, if he cite high authorities in order to support incorrect data, or sustain false conclusions, if his tests, in conducting a chemical analysis, have been injudiciously chosen, how is the influence which such a witness might exercise over a jury, who are are wholly uninformed in medical matters, to be subverted or neutralised, if not by the superior knowledge of the presiding officer of the court? If, for example, the coroners who formerly held the inquests in the great hospitals of this metropolis had been persons who had received a medical education, one fourth, or a third, of the verdicts would have been either "Manslaughter" against the medical officers of those institutions, or "Died from the effects of neglect," or "improper medical treatment," or "from the unskilful performance of" some "surgical operation;" whereas those inquests are now the most worthless of farces, and are a disgrace to the legal institutions of a civilised nation. The coroners who act in those places are all of them lawyers; the beadles are the servants of the hospitals; and the jurymen, who are summoned by the beadles, are often the accommodating servitors of those gold-laced, cocked-hat officials, and are, but too often, conveniently selected from the lanes and alleys which are contiguous to the walls of the establishments. The inquests in these places constitute a little matter of "business," of a description which is perfectly well understood by Mr. BEADLE, his brother CAPABLE,—the coroner,—and his pot-companions, or dependants, the jurymen. When did the verdict of a coroner's jury, delivered within the walls of any of the great hospitals of this metropopolis, impute negligence or want of skill to either of the medical officers attached to those institutions; and often are bodies sent to the tomb on which inquests ought to be held, when such investigations are wholly omitted? Ghosts of STEPHEN POLLARD, and of a thousand others,—*Speak!* Alarm and instruct the nation with your tales of blood!

UNLESS the promoters of the new Institution, to be denominated the "BRITISH MEDICAL ASSOCIATION," keep steadily in view the causes which led to the entire subversion of the objects of the great General-Practitioners' Association of 1812,—the Surgeons' Association, headed by Mr. LAWRENCE, in 1826,—and the Provincial Medical Association, instituted in 1832,—*another* failure will be added to the list, and at a period when its consequences may work incalculable and permanent mischief to the interests of the majority of the medical practitioners of this country.

The proceedings of the Association of General Practitioners which was actively at work in 1812, show, as was proved by a series of articles in THE LANCET of 1826, that the members of that body had not taken an enlarged view of their rights, or of the principles on which a medical reform was to be conducted. Still, for a time, they cudgelled their brains into the discovery of many useful facts, and, as they advanced in age, they appeared to improve in knowledge. But, in a luckless hour, after having failed to carry a "Medical Reform Bill," as it was termed, through Parliament, some knave, or fool, amongst them, suggested that the "co-operation of physicians" should be

"solicited,"—that "the President and Fellows of the College of Physicians should "be invited to *act with them*, and to *intercede* "*for* them with the legislature!" What was the result? The Act of 1815 was passed; the College of Surgeons lost nine-tenths of its powers; apothecaries were described in the fifth clause of the Act as the *servants* of physicians; and, by the 28th clause, the percentage system between physicians and chemists and druggists received the sanction of a statute of the realm. If the Association of General Practitioners had stuck firmly to their text, had resolved to obtain a full measure of justice for an immense majority of the professional body, without humbling themselves to play the part of tools and sycophants to the Dubs, and other impostors of the day, twenty years since would have marked in our history the period of the first great triumph of medical reform.

In the spring of 1826, contrary to all our exhortations, our admonitions, and our remonstrances, the same soft-witted system of tomfoolery was pursued. At that time Mr. LAWRENCE, forsooth, could not attend as the chairman of a public meeting of the profession in Freemasons' Hall, without previously convening at his residence a meeting of hospital gentry, when it was resolved amongst them, almost without a dissentient voice, that at the public meeting to be held in a day or two afterwards, the council of the College of Surgeons should be addressed by "remonstrance," and that Parliament should *not* be appealed to by petition. This traitorous deviation from the previous determination to apply to the legislature for an abrogation of the charter, induced a nice little band of the "recognised" hospital surgeons to surround the chair of the president on the day of meeting, and there were assembled on that occasion, altogether, nearly 2,000 practitioners and students. Towards the conclusion of a very animated discussion, a resolution, calling on the meeting to address a "remonstrance" to the council, was proposed. Instantly, however, the treachery of the manœuvre was discovered, and we had ourselves the honour of proposing an amendment, calling on the assembly to agree to a resolution pledging the meeting to sign a petition to Parliament, praying that the charter of the college might be abrogated, and that the members at large should enjoy the right of *electing the council*. The cause of truth and justice triumphed over the stratagems of the knaves and apostates. Although the chairman, in violation of all his previous pledges and promises, spoke in favour of a "remonstrance," the amendment was carried by a majority of four or five to one, and a petition was prepared, and afterwards presented to the House of Commons by Mr. WARBURTON,—the presentation of that document being the maiden effort of Mr. WARBURTON in the cause of medical reform. That enlightened and straightforward legislator saw that the petitioners understood their duty, and were in earnest, and, accordingly, he became at once strongly interested in their favour. In consequence of the adoption of the amended resolution,—in consequence of exposing the treachery which had been practised, and the determination of the meeting to avoid a sham, a mock reform, and to proceed with zeal to obtain a real and substantial measure of relief,—what occurred with regard to the Pures and Dubs, the gentlemen who were so "*very* anxious to co-operate with their *brethren*, the general practitioners!" There were two meetings, held a fortnight asunder. At the *first*, the proposal to "remonstrate" was scouted, and a resolution was carried for petitioning Parliament. The second was held for the purpose of hearing the petition read. Where were the Pures, the Dubs,—the "recognised,"—on the day of the second assembly? Heaven only knows; but it is quite certain that they were not on the platform. The work of *real* medical reform was to them a labour full of terrors. Presently, our champion of a chairman, a Pure of the first water, himself began to cool, and the sturdy WILLIAM LAWRENCE, the concocter of the notorious lectures on "The Physiology of Man,"—who *gloried* in being styled "a radical in religion, in medicine, and in politics," the radical political commentator of 1818, on the "SIDMOUTH-and-CASTLEREAGH green-bag conspiracies," and on the "Crocodile tears of OLD BAGS," (his own terms,)—became, after a little dalliance, *softly cushioned in the Council of the College*, and has since exhibited himself as one of the "recognised" *monopolists* of a "recognising" college, and a "recognised" school. But after the secession of the traitors and apostates, there were reformers who stood firmly to the cause. The question

of medical reform was kept alive, was agitated and discussed, and the petition on the table of the House of Commons was employed as a lever for working out the object which the mass of the profession had in view. The origin and labours of the medical committee in the House of Commons are well known and understood. The Medical Witnesses Act was one of the fruits of an energetic and continued exposure of the annoyances and grievances to which practitioners have long been subjected. Under the influence of a benevolent and most laudable desire to accellerate the success of the great cause, the provincial or migratory medical association was projected. The members of that club have held four annual meetings, and at the next, if there should ever be another, its requiem will be sung. Probably, before its last meeting takes place, the general practitioners belonging to the Association will endeavour to master this question:—"In what manner "can glorifying Dr. Boisragon, at Cheltenham, at a sacrifice of our time and money, "relieve us from the annoyances of quacks, "protect us from the perfidious practices of "the College and the Hall, shield us from "the insults and injuries of Poor-Law Commissioners, and fix upon a secure basis "the rights of the members of our department," or, in other words, of the vast majority "of the profession?" If this question be solved with judgment, Dr. Boisragon will have to play his fashionable antics before only a very small party of visitors.

Arrived, then, have we, at that stage when it has become necessary to establish a British Medical Association, and it is most justly and sensibly instituted by surgeons who are engaged in general practice. Gentlemen of this class constitute, probably, full fifteen-sixteenths of the whole profession, and ought, therefore, to take the lead in the management of *their own affairs*; and they must firmly retain the control of the Association in *their own hands*, or, we unhesitatingly predict, that they will be again and again betrayed.

"Oh! but" it is said, "don't stir up "animosities between different classes of "practitioners. Let us *conciliate*. Let all "ranks combine towards effecting this "one grand object."

Pooh! Nonsense! Balderdash! Away with all such humbug, such sycophantic hypocrisy and wheedling! Away with the disgusting practice of booing and scraping by men who stand upon THEIR RIGHTS,—the whole object of whose proceedings is embodied in the single word "JUSTICE."

Brilliant and splendid is the prospect which is now open to the British Medical Association. The field, however, cannot be maintained by men of timid minds or truckling dispositions. Strong heads and firm hearts must be united against both intimidation and seduction. Resolutely and undauntedly must the Association proceed in a straight-forward course of manly policy. Have we any misgivings as to the course that will be taken, or as to the result of the enterprise? We shall speak plainly on the subject, because the danger evidently lies in concealing the truth, and not in giving to it publicity. The contents of three notes which we have received this week, refer to certain tokens or indications of want of *nerve*, if not of judgment, by a few of the stewards of the late dinner—signs which are by no means of a promising character. It appears that considerable anxiety was manifested by a few of them to procure the attendance, at the festival, of certain Physicians, Dubs, and Pures, and one practitioner, of great respectability, withdrew from the Committee, and refused to attend the dinner, from disgust at this unseemly manifestation of pusillanimity. "Why, "whom, then," it may be asked, "would "you invite to become members of the Asso"ciation, if not the physicians and surgeons "of our hospitals?" This is our answer:—Not a man in the profession, whatever may be his renown, or his wealth. Not a man! The course which the members of the Association ought to take, is simply this:—Agree, as speedily as possible, upon the laws. Publish those laws. Hold a public meeting immediately afterwards, and convey a *general invitation to the profession* to become members of the Association which has for its object the carrying of those laws into effect; but it is utterly beneath the objects and character of the Association to *solicit, by individual* application, any persons to become members of the Society. Then should the members of the Association assemble *weekly*, in one of the medical theatres of the metropolis, centrally situated, and report, on every seventh day, the admis-

sions of new members, and the business which has been transacted. Unless some active arrangement of this kind be at once adopted, the labours of the Association will produce no fruit during the forthcoming parliamentary session. Away, then, with *applications* and *invitations* to *individuals*! None, indeed, should be invited to join the Association, except stout-hearted, high-spirited, resolute volunteers.

The author of a note signed "ONE OF THE STEWARDS," which was published in THE LANCET of this day fortnight, has directed our attention to a letter bearing the signature of "W. EALES, Hon. Sec.," which was printed in the last number of the "Subscription Concern." Our correspondent feels exceedingly annoyed because Mr. EALES has addressed any communication to the pamphlet in question, and considers that the stewards have exceeded their duty "in directing the secretary to send a "communication on *any* subject to the "SLANDERER OF GENERAL PRACTITIONERS who "conducts that work." Our correspondent may appease his wrath, as the reviler of general practitioners has clearly either been hoaxed by the letter signed "W. EALES," or has been subjected to a pointed insult by the stewards. In the letter signed "W. EALES," the cause of the "ticket for the reporter" not having reached the house of Messrs. LONGMAN until it was too late to be used, is thus explained:—"This arose from "the resolution desiring the attendance of "reporters, having only been made at so "late a period as the Monday night pre-"ceding the dinner." Assuredly, then, we repeat, this letter must be a hoax; for here it is stated that it was only resolved three days before the dinner, that reporters should be invited, whereas a ticket was sent to THE LANCET, expressly for a reporter, exactly seven days before the dinner was celebrated, and an editorial notice of the coming event was actually published in THE LANCET, the week before that in which the festival was held. If, then, the letter signed "W. EALES" be really a *bonâ-fide* production, it appears that the stewards were a long while hesitating before they could submit to the *degradation* of transmitting to the owners of that journal a ticket for the admission of their reporter. The slanderer, therefore, has to take his choice between the hoax and the insult. Of course, we should be glad to discover that the stewards, as general practitioners, had exercised the sound sense and discretion of treating the hireling conductors of that infamous production,—which has ever been abusing them,—with the contempt it deserved. We should be rejoiced to learn that, of a truth, they did *not* determine on sending a reporter's ticket to Messrs. LONGMAN until four days after they had sent a reporter's ticket to the office of THE LANCET. But it is feared that this satisfaction is not in reserve for us, because at the conclusion of the letter signed "W. EALES," Messrs. LONGMAN's pamphlet is styled, "a *valuable* periodical!" *Undoubtedly* the letter is a hoax. Were it *not*,—if it could be *possible* that such a letter had been written, and that such a commendatory term was applied to a journal which has ever laboured *incessantly*, and with only one exception (the affair of the Unions), to degrade general practitioners in the estimation of the public,—why, then, we may state, unhesitatingly, that the stewards are in a lamentable state of ignorance with regard to the feelings of an immense majority of the profession,—a discovery which probably they may not make until the first general meeting of the Association. It is the boast of the stewards themselves that their dinner arose out of the meetings which were held by the stupid HULBERT crew, for founding one of the self-supporting humbugs at Newington,—*i.e.* establishing a dispensary on the plan of Mr. SMITH, of Southam. Are the stewards aware that the cause of Mr. SMITH, and his humbug schemes, were advocated with all the feeble energy and miserable talent which the ignoramuses in the pay of Messrs. LONGMAN and Company, were capable of displaying?* From first to last have those hirelings urged the adoption, by the public, of those degrading and ruinous institutions. *Hence* it is a "valuable periodical!" For what else is it "valuable" in the eyes of the stewards? For its virulent and malignant abuse of Mr. WARBURTON? For its impotent attempt to hold up Mr. HUME and Sir SAMUEL WHALLEY as objects of ridicule, because those members of the legislature are supposed to be firm

* Are the members of the "Bucks Me-"dical Association," whose resolutions we published last week, aware of MACLEOD's and CUMMINS' constant advocacy of the self-supporting dispensaries?

adherents to the cause of medical reform in the House of Commons? For its abuse of the parliamentary medical committee? For its puerile hostility to the two executive governments which have exhibited the novelty of befriending the interests of general practitioners of medicine? For its incessant outpouring of slander against many leading members of the profession, not being general practitioners, who have unhesitatingly identified themselves with the mass of their professional brethren in their attempts to be emancipated from the thraldom of the colleges, and the curse of bad laws? Amongst the members thus slandered are Dr. Elliotson, and Messrs. Lawrence, Wardrop, and Liston? Is it "valuable" for its advocacy of all medical abuses, for its attacks on medical students, and for its systematic vilification of general practitioners? If there be *worth* in these things, then is the "Gazette" of Macleod and Cummin a "valuable" production.

After all, there is wit in the application of such an adjective to so vile a publication, and we thank the waggish author for his ingenuity.

BRITISH MEDICAL ASSOCIATION.

To the Editor of The Lancet.

Sir,—Your insertion of the following will much oblige your constant reader and obedient servant, H. S.

London, Nov. 15, 1836.

TO THE MEDICAL GENERAL PRACTITIONERS OF ENGLAND AND WALES.

Gentlemen:—It appears from the advertisement of the Leighton Buzzard Union, that the attempted degradation of the medical profession is arriving at its climax; and that the poor law authorities in that district, possessing *some* small bowels of compassion, and foreseeing the inevitable tendency of the course they are pursuing, have, from motives of pure kindness, offered apartments in the workhouse to their medical officer, that, when his bodily strength and mental capacities have been worn out in their service, (which a very short time must effect), he may be too much familiarised with the place, and the tender care bestowed on its inmates, to feel the degraded and hopeless condition into which their *kind patronage* will irretrievably have plunged him.

Two hundred pounds a year as remuneration for exclusive attendance, (by a "medical gentleman duly qualified"), on fifteen parishes containing 11,800 persons!* What a magnificent recompense, independently of two empty rooms in the workhouse! *Otium cum dignitate!* Suppose his horse, instruments, and furniture, to cost only 80*l.*, and the drugs and medicines but 50*l.* more, he will have just 70*l.* left to provide for himself and his horse during the first year, at the end of which, from hard work and still harder fare, the horse will be fit only for dogs' meat, and the master to take his station among his former patients in the workhouse wards. A congratulatory report of parochial savings will then issue from the Guardians, and a fresh advertisement for application from "Medical GENTLEMEN, duly qualified, who may wish to fill the situation of Medical Officer to the Union."

Hitherto medical men have always ranked amongst the members of the liberal professions. How, then, does it happen that the interests of the most valuable portion (those in general practice) have been so wofully overlooked or disregarded? For one single reason. There has been no union amongst themselves. *Physicians* and *pure surgeons* only congregated in the hospitals; "for where the carcase is, there will the eagles be gathered together." They formed exclusive societies, and became corporate bodies, by which the public were led to believe, that they were all men of superior attainments and abilities; little knowing that the despised and degraded, (degraded by the exclusive distinctions bestowed on the other branches of the profession) general practitioners had to undergo a more strict and extensive examination than either of those privileged classes; or that, according to the constitution of our medical jurisprudence, the smallest quantum of education will qualify for the highest (or, at least, the haughtiest) branches of the profession.

General practitioners are more isolated, perhaps, than any other body of men. Each has his own district, from which he seldom moves. They congregate not in hospitals; they have no colleges at which to confer; nor have they any other means by which, as a body, to make known their wants, to protect their rights,† or to redress their grievances. A parliamentary committee has been sitting, whose ponderous and expensive reports of evidence the general practitioner has neither time nor opportunity to become acquainted with;‡ the colleges of physicians and surgeons have been there represented; the members of both have

* The paupers amongst the 11,800 persons.—Ed. L.

† Our correspondent overlooks the fact that he is, at this moment, employing one instrument—free, the only one—for effecting these desirable objects. —Ed. L.

‡ Every tittle of the evidence which is of public value, has been published, in an unexpensive form, in, or in connection with, this journal, and has been most extensively read by the profession.—Ed. L.

given their evidence; whilst the most numerous body of the profession (without a head) have silently looked on, or been in utter ignorance of what so vitally regarded their welfare. Had the parish poor been attended by physicians, or pures, the medical clauses of the Poor Law Bill would have assumed a very different character.

The only remedy for this evil is in your own hands. An opportunity now offers to form an ASSOCIATION OF MEDICAL GENERAL PRACTITIONERS, which, if allowed to escape, will only add to your distresses and disappointments, and lead the world to believe, what it has been the interest of others to insinuate, that you compose an inferior grade in your profession. Concentrate your strength in an intelligent and efficient Board; make *them* your representatives, and your voice will be heard and respected, your rights and interests protected, and your grievances redressed. You should rest contented with nothing less than becoming an incorporated body, for which you have an example in the charter granted to the legal profession, by which their energies, as a body, have been concentrated into such a respectable and powerful form as will always carry weight with its representations, either for solicitation or remonstrance. I have the honour to remain, Gentlemen, your obedient servant,

H. S.

PROLAPSUS OF THE CERVIX AND OS UTERI,

DURING PREGNANCY AND LABOUR.

To the Editor of THE LANCET.

SIR:—The following cases of prolapsus of the neck and os uteri, continuing during pregnancy and labour, are forwarded for insertion in your valuable periodical. I am, Sir, your obedient humble servant,

EDWYN G. S. GURNEY.

Camborne, Cornwall, Nov. 9, 1836.

ANNE MICHELL, aged 38 years, was taken in labour with her fourth child, on the morning of the 2d instant. I was called to attend on her about half-past six o'clock, A.M., when I found her suffering under strong pains, and on examination per vaginam, I discovered a tumour, similar in shape to a large bell-pear, the smallest part being downwards, in the vagina, and protruding externally. I could pass my finger round it, and could feel the child's head presenting, and resting at the upper outlet of the pelvis, above and within this elongation. On further examination, I considered that it must be the uterus, and on placing my finger at its under part, I found an opening of about the size of a sixpence, and on passing my finger upwards, I felt the child's head, and ascertained that the membranes were ruptured. I then asked her if she had been subject to prolapsus uteri? To which she replied, that she had been since her first labour, to attend which I was called, but she was delivered both of child and placenta prior to my arrival, she then living at some distance from my residence; on the present occasion I had not seen her for eight years previous, as she had left this neighbourhood. On further inquiry, (made after she was delivered), I heard that, with her second child, the prolapsus disappeared during pregnancy, and during the pregnancy with her third child it continued, and occasionally protruded externally, it having, during labour, come down before the child's head. She stated, that occasionally, she used a pessary, but not during pregnancy.

The pain continued quick and severe, and at about seven o'clock, during a couple of strong expulsive pains, the head came through the pelvis, and passed out of the vagina, carrying before it the uterus. The os uteri was now about one inch in diameter, and it was with the greatest difficulty that I could keep the head from making a further descent during the pains; indeed, I believe, if it had been left alone, it would have descended farther, and very likely child and uterus would have been expelled wholly. Whilst there were no labour-pains, the head and uterus could be replaced within the vulva, but on the return of the pains it was immediately expelled. This continued for about an hour, during which time I kept my thumb and fingers, as soon as they could be introduced, against the child's head, within the os uteri, which then became fully dilated, and the child was expelled. After the expulsion of the placenta, I replaced the uterus within the pelvis, but on the third day, contrary to orders, on her sitting up in the bed, it again descended into the vagina. In every other respect, she is quite well.

KNOT IN THE FUNIS.—I have met, in the course of a very extensive midwifery practice during the last eighteen years, with two cases of a single knot in the umbilical cord. In one case, the cord was only one foot in length, and the liquor amnii was in abundance. No doubt, the child died from want of nourishment, as it had died at about the sixth month of utero gestation; the child's weight stopping the circulation, and at the knot the cord was impervious. The other child was living, as the cord was very long.

LONDON MEDICAL SOCIETY.

Monday, Nov. 7 and 14, 1836.

Dr. WHITING, President.

DELIRIUM TREMENS.

Mr. KINGDON, who was not present at the last meeting, on the minutes being read, inquired whether the small bleedings in the case related by Dr. STEWART, were not employed for the purpose of allaying irritability, rather than to subdue any inflammatory action?

Dr. STEWART considered the treatment to have been quite antiphlogistic, more so, indeed, as being entirely opposed to the previous treatment. He had brought the case forward as an exception to the general rule of proceeding in like cases.

Mr. BRYANT inquired how irritability could be relieved by the abstraction of blood? But to avoid a misunderstanding of terms, he would ask what Mr. KINGDON considered to be irritability?

Mr. KINGDON.—It might be the result either of fulness of the vessels without inflammation, or of decrease of blood in the system, or of excessive or decreased nervous action. In the first instance small blood-lettings would act as a sedative; in the second, nutritious diet was demanded; in the third, the more decided sedative class of remedies; and, in the last, stimulants would benefit. Different systems required different treatment, which the judgment of the practitioner must point out. He certainly considered that, in cases of the first kind, blood-lettings acted as a decided sedative.

Mr. BRYANT.—There are states of the brain in which a high degree of irritability exists, and stimulants are most beneficial. In a woman, for instance, who is almost sinking from hæmorrhage, the brain robbed of its blood, and the system in commotion, blood-letting would not act as a sedative.

Mr. KINGDON.—I have seen patients in whom hæmorrhage has reduced the patients to the last extremity, and who for three or four days could scarcely be said to be alive, when, re-action coming on suddenly, has threatened serious mischief, and the cautious abstraction of about four ounces of blood was considered necessary to the relief of the great nervous irritability.

Mr. BRYANT.—I alluded to the state of the brain immediately after the occurrence of the hæmorrhage in delirium tremens. The brain is in much the same state. The condition of which Mr. Kingdon has spoken came on after the lapse of a few days.

ABDOMINAL TUMOURS.

The discussion on delirium tremens having here stopped, and the PRESIDENT was requested to state the progress of a case in which there was a number of tumours in the abdomen, and which he had mentioned to the Society in the early part of last session (LANCET, Vol. i., 1835-6, page 180, case of *Martha Collard*.) The woman was in much the same state; her health was not affected as though she was suffering from a malignant disease; the tumours were, however, increasing in size. Her appetite and health were very good; the other day she walked a mile and a half, though her abdomen is larger that that of a pregnant woman. She has occasionally slight ailments, appearing to result from the disease. Various opinions as to the nature and situation of these tumours had been advanced, but he still considered that they were of the hytatid species, and situated in the liver; each tumour appeared to be globose, and he could detect the presence of fluid in them; they were at some distance from the parietes. Some gentlemen who had seen the case thought it possible that the swellings might contain flatus. This he could not believe was the fact. This information being concluded,

Mr. HONEYWOOD mentioned a case in which a lady who had been the subject of delirium tremens, and who was relieved by Battley's Solution, in a late attack became a victim to ptyalism, produced by mercury given by a gentleman who had not attended her in her previous fits of disease.

HERNIA.

Mr. PILCHER said that he had during the summer been called to a case of strangulated femoral hernia, occurring in a woman fifty years of age. The symptoms were not very urgent, but sufficient, he considered, to warrant an operation; the tumour was very elastic, and apparently distended with intestine. On opening the sac, he found it filled with fibrine, mixed with serum, but there was neither omentum nor intestine in it. The hernia had been reduced before he saw the case, inflammation of the sac had followed, and effusion had taken place, leaving the symptoms of strangulation. The inflammation had not extended beyond the sac; he thought it was better, under the circumstances, to remove the sac at once, leaving the neck only, because there then would be less probability of the inflammation extending. He removed the sac accordingly; the woman went on well, and the wound healed, she having been subjected only to a pain in the abdomen three days after the operation, which was relieved by bleeding, and other antiphlogistic measures. She was now perfectly well. He did not ever remember hearing of a similar case. What was the opinion of the Society on the practice he had employed?

Mr. KINGDON did not remember a similar case; this one, however, threw some light on a case in which he had been consulted:—

BEST COPY AV

A delicate woman was attacked with dreadful vomiting, and pain in the abdomen; she would not submit to be examined, to prove whether a tumour existed, but said there was none present. The vomiting and pain in the abdomen ceased, and she then acknowledged that she had a tumour in the groin, and consented to have it examined. Her surgeon pronounced it hernia. He (Mr. K.) was now called in, and found the patient exceedingly low, but without any symptom demanding an operation; the tumour gave a feeling of the presence of omentum. At the end of a fortnight the tumour had diminished two-thirds in size; he considered that a portion of the omentum had slipped up. Only a very small portion of the tumour now remained. The case bore some analogy to the one related by Mr. Pilcher, whose practice he thought was good.

Mr. CRISP was called some time since to see a man with strangulated congenital scrotal hernia. He found an enormous tumour. The usual remedies were applied, and in a short time the hernia suddenly passed into the abdomen. On the next day all the symptoms of strangulation again appeared; he had excessive pain in the abdomen, constant vomiting, and constipated bowels; no tumour was visible, but there was a slight puffiness about the abdominal ring. An operation was proposed, but not consented to until several hours had elapsed, when it was considered too late to employ it, as the man was sinking fast, and died half an hour after. At the examination, the finger passed easily into the abdomen through the ring. On laying open the cavity of the abdomen, an immense mass of ilium was found, in a state of high congestion, and begirt by a membrane like a piece of whip-cord, which acted as a ligature. This band had apparently formed in the tunica vaginalis, and had passed up with the intestine.

Mr. HOOPER remembered a case in which an old gentleman who had a hernia for six months, and which was usually readily reduced by himself, was one day seized with all the symptoms of strangulation, except the external one; there was no tumour; the symptoms continued, and the patient sank. But no post-mortem was allowed.

The PRESIDENT related a case in which all the symptoms of hernia existed, including a tumour in the groin; the operation was performed. On arriving at the supposed hernial sac, a quantity of water gushed out; there had been hydrocele of the upper part of the tunica vaginalis; the patient went on well.

Mr. PILCHER.—Where there are symptoms of a strangulated hernia, even although they may not be urgent, and even where some of them are absent, with a tumour in the groin, an operation is justifiable. I have seen cases in which the only symptom evidenced was sometimes when the hernia was strangulated, the patients died. I remember an instance in which a surgeon cut into a suppurated bubo, mistaking it for hernia, but the symptoms accompanying it justified the proceeding. In Mr. Hooper's case, I consider that the strangulation was at the neck of the sac. The plan now adopted by some surgeons in operating for hernia, of returning the sac without opening it, seems to me to be a dangerous one.

Mr. KINGDON.—I performed that operation many years since, and spoke to Mr. Travers on the case, who told me not to risk it again, and related an instance in which it had failed, internal strangulation taking place. When Mr. Key's book appeared, I mentioned Mr. Travers' case to Mr. K., as well as my own. The intestine in Mr. Travers' case, Mr. Key supposed, had not passed into the abdomen. In Mr. Crisp's case, I suppose the sac was not returned.

The PRESIDENT.—I remember the case of a boy, in whom a hernia appeared to be strangulated to a certain extent; the hernia was reduced, but the symptoms of strangulation continued; the bowels remained costive, and stercoraceous vomiting came on. I was then requested to see the patient, and thought it probable that the intestine might be so weakened by the hernia, that inflammation might still be present, and that the intestine had not sufficient power to carry on its function. Leeches were applied, and small doses of sulphate of magnesia were injected into the intestines, and the patient recovered.

Mr. KINGDON.—Where there is reason to suppose that a hernia is strangulated, the less urgent the symptoms are, the more dangerous is the case.

November 14.

The discussion on Mr. Pilcher's case of hernia was this evening resumed.

Mr. BRYANT inquired, if nature had not done all that was necessary in the case, by filling the tumour with fibrine? He was disposed to think, that the tumour would have been better left alone.

Mr. PILCHER.—In this case inflammation was still present; the contents of the sac, serum and unorganized fibrine, did not adhere to the coats of the sac; they were easily turned out; under the circumstances, I think I acted in the safest way for my patient. Should a similar case occur to me, I should adopt the same proceeding. Of course, had I been aware of the contents of the sac, I should not have opened it; this, however, it was impossible that I should know; but having laid it open, there was less fear of the inflammation spreading, by

COPY AVAILABLE

removing the sac, than by allowing it to remain.

The PRESIDENT.—I should object to the proceeding of Mr. PILCHER on two grounds. First, the possibility of what remained of the sac passing into the abdomen and producing mischief; and, secondly, because I should apprehend that the inflammation would be more extensive than if the sac had been left entire.

Mr. PILCHER.—Even if the neck of the sac had been returned into the abdomen, the condition of the patient would have been better than if the whole sac had been allowed to remain open; but in my case I felt that the neck of the sac was adherent to the parietes.

Mr. KINGDON.—Mr. Pilcher seems to me to have been fully justified in the course he pursued. Having laid open the sac, I consider that it would not have healed quietly if allowed to remain; the inflammation would have been more violent. I think that the plan adopted in the case in question, gave a better opportunity for the kind healing of the wound.

Mr. PILCHER.—What is the youngest age in a patient at which any member has found it necessary to operate for strangulated hernia? I ask this question in consequence of having lately operated on an infant two months old, with strangulated congenital hernia. It had been strangulated many hours before I saw it, and all the usual means having failed, I proposed to operate, and did operate, and only regretted that the operation was not performed ten hours before, the parts having been so bruised and injured by the long application of the taxis. The child, however, entirely recovered, but died about two months after the operation, from some affection of the chest. I was induced to operate in this case from remembering one in which a child two years old perished, in consequence of a strangulated hernia.

Mr. G. JONES alluded to a plan which had lately been proposed to radically cure hernia, by the constant and increasing pressure of wooden pads. The plan was promulgated by an American doctor, though he (Mr. J.) did not pay much attention to newspaper-advertising cures. He, however, thought the attempt to cure by pressure was very plausible.

Mr. PILCHER knew an instance in which a patient applied to the individual in question, but the proceedings adopted were so unscientific that he left the "doctor" in disgust.

Mr. CLIFTON, in all recent cases, considered that there was a chance of cure by the pressure of a common truss, permanently and carefully worn, and he always employed it in such cases with that view.

MEDICO-BOTANICAL SOCIETY.

The first meeting of this Society was held on Wednesday, the 9th. inst. EARL STANHOPE, President. The meeting was a good one. Dr. SIGMOND read a very interesting and learned paper on the Early English Botanists, and the Progress of the Science of Medical Botany in England. The study of the science may be dated from the reign of Henry VIII., when Dr. Turner published his "Medical Botany." After this, various works at different periods appeared, though but little order was observed in any of them, and none of them gave the results of the author's experience with the various plants described; but merely stated their virtues on the authority of Pliny and Dioscorides. The first Pharmacopœia was published by the London College of Physicians, in May, 1618; but it contained so many blunders that a new edition was published in December in the same year. Pharmacopœias were first thought of by Valerius Cordus, a student of Nuremburg. In 1745, Sir H. Sloane improved the Pharmacopœia greatly, by giving in it a description of the various plants used in medicine. It was still further improved in 1788; and, in 1809, the names adopted by the French chemists were first introduced. Mr. Battley had sent, for exhibition this evening to the Society, the various narcotics. Dr. Sigmond, in making some remarks on opium, said that M. Texier had lately had an opportunity of visiting the places where the Turkish opium is prepared. Dr. S. gave an account of its collection, which need not be repeated here, as the facts will be found embodied in the lecture by Dr. Sigmond, which is published in this week's LANCET.

THE MIGRATORY DEGRADER OF THE PROFESSION.—Mr. Smith, from Southam, has come once more to town, and on Friday week presented himself at the Rooms, 32, Sackville-street, before fourteen persons, to whom he recited the same speech on self-supporting frauds, as he delivered on the last occasion that we exposed his practices in London, but with a truly damped spirit. The fourteen included Mr. Hulbert, two ladies, and four friends. One visitor was lulled to sleep in a very short time, by the monotonous tones of the speaker, and some others, wearied with his common-places, slipped out of the room, so that, like Prior's "Emma," the audience became, as the scheme was under development,

> "Fine by degrees, and beautifully less,"

until the orator at last was almost "left alone in his glory."

PRIVATE OPERATION AT ST. BARTHOLOMEW'S.

To the Editor of THE LANCET.

SIR:—Your report of the Rhinoplastic Operation in last week's LANCET did not mention a very important circumstance of the case, as respects the pupils.

Operations, excepting in cases of emergency, are invariably performed on Saturday. Mr. Skey, however, thought fit to select Sunday for this operation,—a day when he well knew that nine-tenths of the pupils were not within the precincts of the Hospital. The short time (a few hours only) which elapsed from the patient's first entering the ward, till the performance of the operation, had a capital effect in preventing our knowing anything of the affair.

A few days after this, Mr. Earle removed the leg of a man, in consequence of compound fracture, at which Mr. Skey assisted. Before the completion of the proceeding the following notice was industriously circulated:—"Call on Skey for an explanation of his conduct in performing a secret operation." As soon as the patient was removed from the operating theatre, a general call of "Skey!" took place. Mr. Skey at first affected to treat the matter with contempt, but as the call became more clamorous and general, he informed the pupils that if any gentleman would bring forward the charges they had against him, he would readily rebut them. A dresser of Mr. Lawrence then rose, and hinted a want of courtesy on the operator's part, in performing an operation of no emergency without notice being given, (except to a few of the Aldersgate-schoolmen), and in passing several gentlemen, of whom he (the speaker) was one, in the Hospital square, without informing them of it. Mr. Skey interrupted him, and, with much warmth, delivered, what he was pleased to call a justification of his conduct, but which might, with more correctness, be designated a "puff-direct" of himself, of which the following is a brief, but correct outline:—"The matter had been misrepresented to the pupils; it would be readily cleared to their satisfaction on listening to his explanation. He had had the honour of being for many years assistant-surgeon to the Hospital, and never before had a similar charge brought against him, the ground of charge being at direct variance with the uniform conduct of his life, in proof of which he could with confidence appeal to Mr. Earle," at the same time oiling that gentleman with the most fulsome adulation. "So far was he (Mr. Skey) from wishing to conceal his operations, that he desired publicity. He considered himself to be superior to the general run of operators, and exhibitions of his skill before pupils in that theatre did him good." Next, he adverted to the repugnance of the patient to be operated on publicly, and the advantages which the pupils would ultimately have in witnessing the success of the case! He then hastily withdrew, refusing to listen further to the gentleman who first addressed him, and to whom he had given the —— direct. The explanation appeared to be satisfactory only to himself. I am, Sir, yours, &c.

BARTHOLOMEWENSIS.

13th Nov., 1836.

SUGGESTIONS FOR A GENERAL ASSOCIATION OF METROPOLITAN MEDICAL STUDENTS.

To the Editor of THE LANCET.

SIR:—While about establishing an union of GENERAL PRACTITIONERS, what is your opinion of the usefulness and practicability of a general *friendly* association of the metropolitan students in medicine? It would seem favourable to the very desirable end of commencing early in life those associations which often lead to lasting and useful friendships, the tendency of which must necessarily be, to obviate the jealousies and sordid rivalries which are so often the bane and degradation of the practitioners of a district, sinking also the general character of the profession.

The plan of this aggregation of the pupils might principally consist in frequent reunions, at the respective schools, in rotation, (provided the *disinterested* teachers would charge no extra fee for the use of the theatres); conversations; occasional (voluntary and *brief*) medical or scientific notices; chess, music, exhibitions of examples of the application of the arts to medical science, such as in instruments, models, casts, rare engravings, diagrams, drawings, &c.

The project is feasible, and may be accomplished at a very trifling expense, and additional interest might be imparted to it by a restricted permission to the members to introduce gentlemen and students pursuing the sister sciences.

I hope these hints will obtain your attention, and the approbation of pupils in general, who need something of this kind, as an auxiliary to, and a relief from the severity of, their studies. I remain, Sir, your obedient servant, AN OLD PRACTITIONER.

BOTANY PRIZE MEDALS.—The successful candidates for the botanical medals annually awarded by the Society of Apothecaries, have this year been,—Gold medal, Mr. W. JENNER, of Rochester; silver medal, Mr. W. B. TEGETMEIR, of London, pupils of Professor Lindley, of the London University. There were six candidates for the prizes,—three from the above school, one from the Guy's Hospital School, one from the St. Thomas's Hospital School, and one from King's College. This is the seventh time that the highest prize has been carried away by a pupil of Dr. Lindley.

GREAT AUCTION.

CHARING-CROSS HOSPITAL.

TO BE SOLD, ON THE PREMISES, BY

Mr. JAMES CROW.

With much reluctance the Director and Select Committee of this Institution announce to the medical profession, and the public, that in consequence of the failure of the last musical festival, they are compelled to offer for sale the following property of the charity, in order to meet the expenses which were unavoidably incurred in engaging the Royal College of Musicians of Lincoln's-Inn-Fields, whose vocal abilities, notwithstanding the expense (500 guineas!) proved less attractive than was anticipated, and involved the speculation in a debt much greater than its receipts.

The auction will commence on Monday next, at one o'clock, P.M. (St. George's time.)

Lot 1.—A director's brown wig, which the owner moulted at the commencement of last winter; original cost, £1 1s.

Lot 2.—A composition bust, a happy likeness, particularly about the hair.

Lot 3.—A clean and faithful manuscript copy of Dr. Denman's lectures on midwifery, (very scarce!) of infinite value to young lecturers, whose pupils have never seen the original. (Date, October, 1834.)

Lot 4.—An introductory lecture to a course of obstetrics, quaint and profound, with critical and original remarks upon the ossa coccygis and tincæ. (Delivered in Oct. 1834, for the last time.)

Lot 5.—A course of lectures on the practice of physic, in which the doctrines of Drs. Radcliffe and Morison, and Mr. St. John Long, are forcibly recommended as not being based upon the pathological and anatomical absurdities of the present day.

Lot 6.—A set of lectures upon morbid anatomy, illustrated by preparations valued at several thousand pounds more than those of St. George's Hospital. Also, a course of lectures upon surgery, in which the rectum is proved to be crooked, and the vesica urinaria to exist in the human subject, and in some of the lower animals, for the purpose of receiving the secretion of the kidneys and assisting to expel it.

Lot 7.—An operating table, of a new construction; it is peculiarly adapted for operating upon six patients at the same time, and would also answer for a large supper table.

Lot 8.—Forty beds, furnished, good as new, having been occupied during one day only, and then duly consecrated by a deputation from the Royal College of Recognisers in London.

Lot 9.—A ten-roomed house, superbly fitted in modern style, facing King William-street, contiguous to the charity, and well adapted for the residence of a director. Being built with public money, no cost has been spared in the erection.

Lot 10.—The situation of dispenser to the charity, which will entitle the holder to a bed in the shop, the use of the kitchen-fire, and twenty pounds a year for food and raiment. The purchaser need not be a member of Rhubarb Hall; and, in addition to the general "advantages" of the situation, he may attend all the lectures without charge for tickets.

Lot 11.—A packet of Portuguese tooth-picks, presented by one of the committee.

Lot 12.—Two artificial molars and a scalp, found in the theatre of the charity, immediately after a midwifery lecture.

Lot 13.—(Sporting lot.)—A No. 8 bougie a pair of midwifery forceps (a handle of one wanting); a flannel bandage; an urinal, green glass; two rows of pins; half a yard emplastrum adhesivum; a small pot of Guthrie's black-eye salve; one large pot of St. John Long's embrocation; two boxes of Morison's pills; one thousand dozen of Roderick Macleod's bread-pills; six bottles of old crusted port; a pewter syringe (rectum); a curved rectum bougie; two chamber vases (pewter), and a commode; curious preparation (in spirits) end of a tongue, bit off by an epiliptic nurse; half a gallon of "something short," with the permit; six two-gallon jars, with set of cordial glasses; razors of a deceased servant, (certified "genuine" by the coroner for Westminster;) a stamped receipt for five hundred pounds, filled up.

Lot 14.—A select library, consisting of a copy of ex-Professor Mayo's works, bound in Russia; Howship on the Rectum (very nasty); Golding's History of the London Hospitals, extra bound in calf; Gregory's Practice of Physic; Curtis on the Eye and Ear (plates), and fifty other valuable works by the same learned author; Cooper's Surgical Dictionary; History of Benjamin's Sack; several daily papers, containing criticisms on the Festivals; Shearman's Medical Ethics; one thousand prospectuses of the hospital practice and lectures, for the years 1836-37.

*** The whole will be sold without reserve. For catalogues to view (price eightpence) apply at 49, Essex-street, Strand; or at any of the medical booksellers.

CORRESPONDENTS.

Mr. M.—We thank our correspondent for his communication, but the subject of his letter is of too much importance to be discussed under the authority of an anonymous communication. The scoundrels deserve first-rate flagellation. The letter is left with the publisher, at the office, for the writer, under the signature attached to the communication.

A Retired Southwark Practitioner should favour us with his name for publication.—The letter of *Mr. Walford* next week.